CRANE BROS. MANFG. CO.

ILLUSTRATED

Catalogue and Price List

CHICAGO, APRIL 1, 1878.

No. 5876

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Illustrated Catalogue and Price List

OF THE

CRANE BROS. MFG. CO.

General Offices & Salesrooms, 10 N. Jefferson St.

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MANUFACTURERS OF

WROUGHT IRON PIPE,

STEAM AND GAS FITTINGS,

Brass and Iron Goods,

RADIATORS, COILS AND SCREENS.

DRY SAND AND LOAM CASTINGS TO ORDER.

MALLEABLE AND GRAY IRON CASTINGS TO ORDER.

MALLEABLE IRON PLOW CLEVISES, ETC.

A. D. MacGill, Compiler. Donnelley, Loyd & Co., Printers.

[Chicago. 1875]

To the Trade.

Chicago, April 1, 1878.

The edition of our Price List dated March 1st, 1877, becoming exhausted, we have found it necessary to issue a New and Revised Catalogue, with Illustrations, which we herewith present to the trade, simply remarking, that while the book will be found much more comprehensive than the previous one, it will not conflict with it, as the list prices remain unchanged.

We have endeavored to make this Catalogue as com= plete as possible, and hoping, as a result, for an increased trade, we are

Yours respectfully,

CRANE BROS. MANFG. COMPANY.

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U.S.

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CRANE BROS. MANFG. COMPANY,

MANUFACTURERS OF

ORNAMENTAL FENCE,

MADE OF

Wrought Iron Pipe and Cast Iron Fittings.

ESTIMATES FURNISHED ON APPLICATION.

MATERIAL COMPLETE

FOR

SUMNER'S PATENT DRY KILNS,

CONSISTING OF

**CAST OR WROUGHT IRON HEADERS, CAR WHEELS,
AXLES, CABLES, Etc.**

ALSO, FOR ALL KINDS OF DRYERS.

STEAM TABLES,

WITH

TIN DISHES AND COPPER COVERS,

FITTED COMPLETE FOR HOTELS, &c.

CAST IRON FLANGED PIPE,

From 3 to 18 Inches Diameter.

ANY THICKNESS MADE TO ORDER.

UNIVERSITY OF ILLINOIS LIBRARY

WROUGHT IRON PIPE,

PLAIN AND GALVANIZED,

FOR GAS, STEAM OR WATER,

Proved by Hydraulic Pressure of 300 to 500 lbs. to the square inch.

TABLE OF STANDARD DIMENSIONS AND SIZES.

Nominal Inside Diameter.	Price Per Foot, Plain.	Price Per Foot, Galvanized.	Actual Outside Diameter.	Thickness.	Weight Per Foot.	Threads To Inch of Screw.
Inches.	$ Cts.	$ Cts.	In.	In.	Pounds.	
$\frac{1}{8}$	06		0.405	0.068	0.24	27
$\frac{1}{4}$	06	11	0.54	0.088	0.42	18
$\frac{3}{8}$	07	12	0.675	0.091	0.56	18
$\frac{1}{2}$	07	12	0.84	0.109	0.85	14
$\frac{3}{4}$	09	16	1.05	0.113	1.12	14
1	$12\frac{1}{2}$	22	1.315	0.134	1.67	$11\frac{1}{2}$
$1\frac{1}{4}$	18	30	1.66	0.140	2.25	$11\frac{1}{2}$
$1\frac{1}{2}$	22	34	1.9	0.145	2.69	$11\frac{1}{2}$
2	31	45	2.375	0.154	3.66	$11\frac{1}{2}$
$2\frac{1}{2}$	.46	70	2.875	0.204	5.77	8
3	60	90	3.5	0.217	7.54	8
$3\frac{1}{2}$	80	1 20	4.0	0.226	9.05	8
4	1 00	1 50	4.5	0.237	10.72	8
$4\frac{1}{2}$	1 25	1 80	5.0	0.247	12.49	8
5	1 50	2 20	5.563	0.259	14.56	8
6	2 00	3 25	6.625	0.280	18.76	8
7	2 85		7.625	0.301	23.41	8
8	3 50		8.625	0.322	28.34	8
9	5 00		9.68	0.344	34.07	8
10	6 00		10.75	0.366	40.64	8

WROUGHT IRON

STAY BOLT TUBES.

Inside Diameter, Inches.	Outside Diameter, Inches.	Weight Per Foot, Pounds.	Price, Per Pound cts.	Inside Diameter, Inches.	Outside Diameter, Inches.	Weight Per Foot, Pounds.	Price, Per Pound. cts.
$\frac{5}{16}$	$\frac{14}{16}$	1.70	16	$\frac{7}{16}$	$1\frac{3}{16}$	3.10	16
$\frac{5}{16}$	$\frac{15}{16}$	2.21	16	$\frac{8}{16}$	$1\frac{4}{16}$	3.39	16
$\frac{6}{16}$	1	2.40	16	$\frac{10}{16}$	$1\frac{6}{16}$	3.99	18
$\frac{6}{16}$	$1\frac{1}{16}$	2.61	16	$\frac{12}{16}$	$1\frac{8}{16}$	4.13	18
$\frac{7}{16}$	$1\frac{2}{16}$	3.	16				

HYDRAULIC TUBES.

$\frac{1}{4}$ inch thick and less, 16 cts. per lb.
Over $\frac{1}{4}$ " " to $\frac{3}{8}$ inch, 18 " "
" $\frac{3}{8}$ " " to $\frac{1}{2}$ " 20 " "
" $\frac{1}{2}$ " " to $\frac{3}{4}$ " 25 " "
" $\frac{3}{4}$ " " to 1 " 30 " "

EXTRA PIPE THREADS.

Size ..... Inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price ..... Each	5	5	6	7	8	9	10	15	25	30
Size ..... Inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	
Price ..... Each	40	50	60	75	1 25	1 50	2 00	2 50	3 00	

Extra and Double Extra Strong Wrought Iron Welded Pipe.

TABLE OF STANDARD DIMENSIONS AND PRICES.

Nominal Diameter.	Price per foot, Extra Strong.	Price per foot Double Extra Strong.	Actual Outside Diameter.	Weight per foot. Extra Strong.	Actual Inside Diameter. Extra Strong.	Weight per foot. Double Extra Strong.	Actual Inside Diameter. Double Extra Strong.	Nominal Diameter.
Inches.	$ Cts.	$ Cts.	Inches.	Pounds.	Inches.	Pounds.	Inches.	Inches.
⅛	13		0.40	.40	0.20			⅛
¼	13		0.54	.56	0.29			¼
⅜	15		0.67	.75	0.42			⅜
½	15	30	0.84	1.16	0.54	1.38	0.24	½
¾	20	40	1.05	1.61	0.73	2.32	0.42	¾
1	33	66	1.31	2.32	0.95	3.25	0.59	1
1¼	38	76	1.66	3.19	1.27	4.57	0.88	1¼
1½	57	1 14	1.9	3.28	1.49	6.25	1.09	1½
2	72	1 44	2.37	5.22	1.93	7 94	1.49	2
2½	1 36	2 72	2.87	7.28	2.31	14.32	1.75	2½
3	1 71	3 42	3.5	9.44	2.89	18.38	2.28	3
3½	2 18	4 36	4.0	12.92	3.36	22.63	2.71	3½
4	2 75	5 50	4.5	13.44	3.82	24.88	3.13	4

Pipe away from the above standard will be charged at the price of Hydraulic Tubes.

LAP-WELDED CHARCOAL IRON BOILER TUBES.

External Diameter.	Price per Foot.	Standard Thickness.	Nearest Wire Gauge Thickness.	Internal Diameter.	Internal Circumference.	External Circumference.	Length of Tube per Sq. Foot, Outside Surface	Length of Tube per Sq. Foot, Inside Surface.	Weight per running foot.
Inches.	Cts.	Inches.	Gauge.	Inches.	Inches.	Inches.	Feet.	Feet.	Lbs.
1	25	0.072	15	0.856	2.689	3.142	3.819	4.46	.7
1¼	24	0.072	15	1.106	3.474	3.927	3.056	3.45	.9
1½	24	0.083	14	1.334	4.191	4.712	2.55	2.86	1.25
1¾	23	0.095	13	1.560	4.901	5.498	2.18	2.45	1.66
2	23	0.098	13	1.804	5.667	6.283	1.91	2.12	1.98
2¼	25	0.098	13	2.054	6.484	7.069	1.70	1.85	2.24
2½	29	0.109	12	2.283	7.172	7.854	1.53	1.67	2.75
2¾	33	0.109	12	2.533	7.957	8.639	1.39	1.51	3.04
3	35	0.109	12	2.783	8.743	9.425	1.27	1.37	3.33
3¼	40	0.119	11	3.012	9.462	10.210	1.17	1.27	3.96
3½	46	0.119	11	3.262	10.248	10.995	1.09	1.17	4.27
3¾	53	0.119	11	3.512	11.033	11.781	1.02	1.09	4.59
4	58	0.130	10	3.741	11.753	12.566	0.95	1.02	5.32
4½	67	0.130	10	4.241	13.323	14.137	0.85	0.90	6.01
5	85	0.140	9½	4.720	14.818	15.708	0.76	0.80	7.22
6	1 20	0.151	9	5.699	17.904	18.849	0.64	0.67	9.35
7	1 60	0.172	8	6.657	20.914	21.991	0.54	0.57	12.43
8	2 25	0.182	8	7.636	23.989	25.132	0.48	0.50	15.10

Intermediate sizes not on the above list are at the same price as the next size larger.

TERMS OF SALE: Cash within 30 days, or Interest from date of Invoice.

MAXIMUM LENGTH OF BOILER TUBES 18 FEET. Rule to determine price of tubes over eighteen feet in length: For all sizes of tubes *up to* FOUR INCHES in diameter, add to price list *one cent* per inch in diameter for tubes one foot longer, *two cents* per inch in diameter for tubes two feet longer, *three cents* per inch in diameter for tubes three feet longer, and so on,—on entire length.

From FOUR INCHES up to (but not including) SIX INCHES in diameter, add *two cents* per inch in diameter for tubes one foot longer, *four cents* per inch in diameter for tubes two feet longer, and so on, additional. For tubes SIX to EIGHT INCHES in diameter, both included, *six cents* per foot for each extra foot ON ENTIRE LENGTH.

Freight from Pittsburg, Pa., added to above price.

BRASS TUBING AND FITTINGS.

PLAIN BRASS TUBING (Light).

Outside diameter, Inches.	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1 1/4
Price, per Pound,	2 00	1 50	95	55	55	55	55	55	55	55	55

SEAMLESS DRAWN BRASS TUBING (Heavy).

Iron Pipe Size.

Size, inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Outside diameter, inches	9/16	11/16	13/16	1 1/16	1 5/16	1 9/16	1 13/16	2 5/16	2 13/16
Length, feet	11	17	10	10	10	12	10	10	8
Weight per foot, lbs. about	1/2	5/8	8/10	1 1/4	1 7/10	2 1/2	2 3/4	3 1/2	4 3/4
Price per pound	70	65	60	55	50	45	45	45	45

BRASS FITTINGS

Iron Pipe Size.

Size, inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Elbows		20	25	35	55	65	1 05	1 45	2 00
Tees		25	35	45	65	85	1 40	1 75	2 25
Couplings		25	30	35	45	55	75	1 00	1 25
Plugs	6	12	15	20	30	45	70	90	1 20
Caps		12	15	20	35	50	75	95	1 25
Lock-nuts		12	15	18	20	25	40	50	1 00
Return Bends, close pat.				60	1 00	1 25	1 80	2 50	
Nipples			45	60	70	90	1 30	1 45	1 80
Unions	65	65	75	85	1 00	1 25	1 60	2 00	4 00
Bushings		6	7	9	18	25	35	50	70

STEAM AND GAS FITTINGS

FOR

Wrought Iron Pipe.

CAST IRON FITTINGS.

With Reduced Fittings the largest opening governs the price. For table of sizes, and *numbers*, see pages 148 to 152.

ELBOWS.

Size	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10
Price	7	8	11	16	23	33	45	85	1 25	1 75	2 30	2 85	3 85	5 60	10 00	14 00	18 00	26 00

TEES.

Size	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10
Price	8	11	14	19	30	43	63	1 20	1 80	2 40	3 10	4 25	5 50	7 75	12 50	16 50	24 00	35 00

CROSSES.

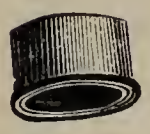
Size	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10
Price	20	25	45	65	90	1 50	2 20	3 10	4 15	5 50	7 00	10 00	30 00	34 00	39 00	46 00

PLUGS.

Size	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price	4	4	5	6	8	10	14	22	35	60	95	1 30	1 65	1 80	2 40	5 00	8 00
Price, Counter Sunk				8	10	12	16	24									
Price, tapped for Air Cock				14	18												

NOTE.—For list of Malleable Iron Fittings, see pages 18 and 19.

CAST IRON FITTINGS.



CAPS.

Size	3½	4	5	6	8	10
Price	1 15	1 40	1 80	3 00	5 50	7 80

Sizes ¼ to 3 inch made in malleable iron only. See page 18 for list.

LOCK-NUTS

Size	2½	3	3½	4	5
Price	28	40	85	1 20	1 60

Sizes ¼ to 2 inch made in malleable iron only. See page 19 for list.

REDUCERS.

Size	3	4	5	6
Price	1 30	2 25	3 75	5 00

Sizes ¼ to 2½ inch made in malleable iron only. See page 19 for list.

BUSHINGS.

That Reduce more than One Size.

Size	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price	6	7	9	11	14	17	24	40	60	80	1 10	1 40	1 80	3 00	5 00	6 50

45° ELBOWS.

Size	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½		4½	5	6
Price	6	7	8	12	15	22	34	44	55	1 00	1 60	2 75	3 00	3 85	4 75	6 85

Pitched Elbows same price as 45° Elbows.

CAST IRON FITTINGS.

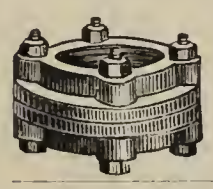
RETURN BENDS.

Size, inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4
Close Pat. dist. bet. Centers, inch.	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{3}{4}$	$4\frac{1}{2}$	11
Close Pattern, Price	19	23	40	55	80	2 20	3 30	7 00
Close Pat. R. & L., with pitch made to order, Price	23	28						
Open Pat. dist. bet. Centers, inch.	$1\frac{7}{8}$	$2\frac{1}{4}$						
Open Pattern, Price	22	26						
Y Bends, Price	40	60	80					

In ordering Close Pattern Return Bends for Coils, always state the length of tubes to be used in the Coils, so that the spread of the tubes will be allowed for.

One inch Return Bends, suitable for Coils, from 3 to 8 feet long,
and $\frac{3}{4}$ " " " " " " " 3 to $4\frac{1}{2}$ " "

Also R. & L. and R. H. Close Pattern Return Bends, straight, are kept in stock.



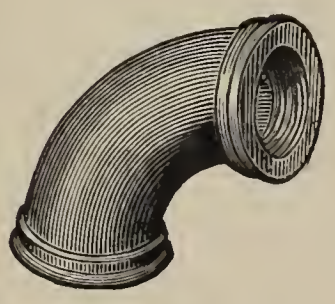
FLANGE UNIONS,

Including Bolts and Packing.

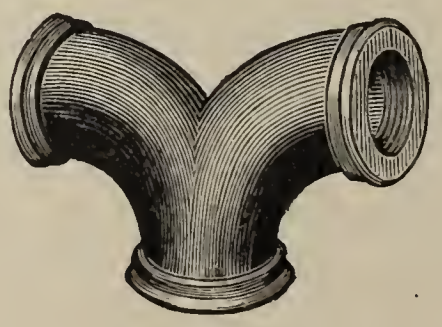
Size, inches	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Diameter of Flange, inches	5	$5\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{3}{4}$	$7\frac{1}{2}$	$9\frac{1}{2}$	$10\frac{1}{4}$
Price	1 60	1 90	2 75	3 75	4 75	7 00	8 50

ELBOWS AND TEES,

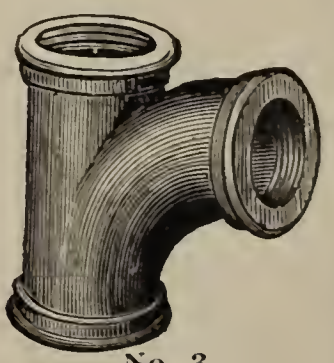
For Water Connections.



No. 1.



No. 2.



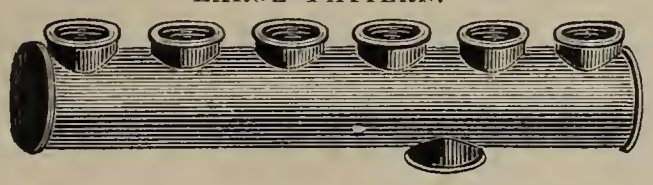
No. 3.

Size	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4	5	6
Price, No. 1	30	50	70	1 50	2 00	3 00	5 75	9 00
Price, Nos. 2 and 3	60	70	90	2 10	3 00	4 40		

CAST IRON FITTINGS.

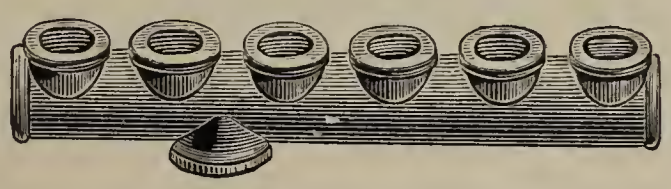
BRANCH TEES.

For Box Coils.
LARGE PATTERN.

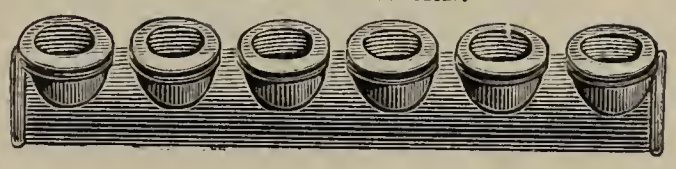


For Circulation.
LARGE PATTERN.

SMALL PATTERN.



SMALL PATTERN.



Number of Branches,	2	3	4	5	6	7	8	9	10	11	12	13	14
For 1 in. Pipe, 2½ in. bet. centers, Small Pat	90	1 00	1 10	1 20	1 40	1 65	2 00	2 25					
For 1 in. Pipe, 2½ in. bet. centers, Large Pat	1 00	1 15	1 30	1 55	1 90	2 35	2 60	3 00	3 50	4 60	5 00	5 50	6 50
For ¾ in. Pipe, 2 in. bet. centers, Large Pat	75	90	1 10	1 25	1 40	1 60	1 80	2 00	2 40	3 00	3 50		

NOTE.—Small Pattern for Circulation have inlets and outlets at the ends.

Small Pattern for Box Coils are tapped left hand, and have a back outlet only.

Inlets and outlets of the 6 to 9 branch can be tapped for 1¼ inch.

Large Pattern for Circulation have inlet at one end, and outlet on back.

Large Pattern for Box Coils are tapped left hand, and have a back outlet only.

Inlets and outlets can be tapped for 1¼, 1½, or 2 inch.

Inlets and outlets of the ¾ inch can be tapped for 1 or 1¼ inch.

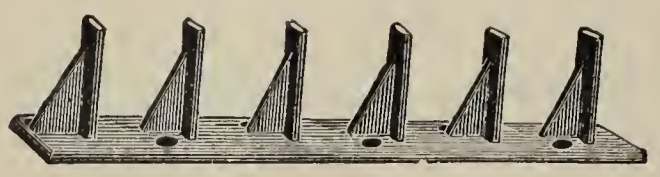
Inlets and outlets same size as branches, unless specially ordered.

Branch Tees made to order at an extra charge.

CAST IRON FITTINGS.

HOOK PLATES.

No. of Hooks	1	2	3	4	5	6
For ¾ in. Pipe, 2 in. between Centers	5	8	11	16	19	23
For 1 in. Pipe, 2½ in. " "	8	15	20	27	33	37



HOOK PLATES.—Expansion.

No. of Hooks	1	2	3	4	5	6
For ¾ in. Pipe, 2 in. between Centers	8	11	15	18	22	25
For 1 in. Pipe, 2½ in. " "	12	20	25	28	40	46

BEAM HOOKS.—Long Shank.

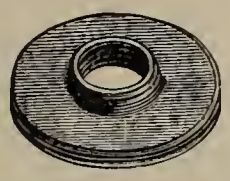
Size	½	¾	1	1¼	1½	2	2½	3
Price	13	14	18	20	25	32	62	85

FLOOR PLATES.

Size	½	¾	1	1¼	1½	2
Price	7	9	11	18	20	30

EXPANSION PIPE HANGERS, OR RING HOOKS.

Size	¾	1	1¼	1½	2	2½	3
Price	26	30	35	45	50	65	80



CAST IRON FLANGES.

Size of Pipe	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	10
Flange 3 in DIAMETER.	16															
" 3½ "	22	23														
" 4 "	24	26	28													
" 4½ "	26	30	32	35	40											
" 5 "	30	35	37	40	45											
" 5½ "	35	40	42	45	50	55										
" 6 "	40	45	48	50	55	60										
" 6½ "	45	55	58	60	65	70	75	80								
" 7 "		65	68	70	75	80	85	90	95							
" 7½ "		75	78	80	85	90	95	1 00	1 05							
" 8 "			88	90	95	1 00	1 05	1 10	1 15	1 20						
" 8½ "			1 00	1 02	1 10	1 15	1 20	1 25	1 30	1 35						
" 9 "				1 10	1 20	1 25	1 30	1 35	1 40	1 45	1 50					
" 9½ "					1 30	1 35	1 40	1 45	1 50	1 55	1 60	2 20				
" 10 "						1 50	1 60	1 65	1 70	1 75	1 80	2 40	3 30			
" 10½ "						1 65	1 75	1 85	1 90	1 95	2 00	2 55	3 40			
" 11 "						1 80	1 95	2 05	2 10	2 15	2 20	2 70	3 50			
" 11½ "							2 10	2 25	2 30	2 35	2 50	2 80	3 60			
" 12 "							2 30	2 40	2 50	2 60	2 70	3 00	3 80	4 50	5 00	
" 13 "								2 60	2 70	2 90	3 00	4 00	4 30	5 00	5 50	
" 14 "										3 20	3 30	4 50	5 00	5 50	6 00	6 75
" 15 "														6 00	6 50	7 25
" 16 "														6 50	7 00	8 00

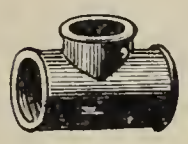
Circle Flanges made to order, at double above prices.

MALLEABLE IRON FITTINGS.

For table of Sizes and Numbers see pages 148 to 152.

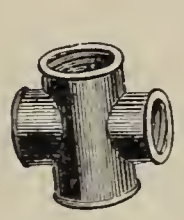
ELBOWS.

Size	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price	5	5	7	8	12	19	26	36	55	95	1 45	2 10	2 90



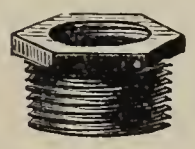
TEES.

Size	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Price	6	6	8	11	15	22	34	48	68	1 25	1 90	3 30



CROSSES.

Size	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price	10	14	22	29	50	70	95	1 65	2 50



BUSHINGS.

Reducing one size only.

Size	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2
Price	6	7	9	11	14	17	24	40	60	80

CAPS.

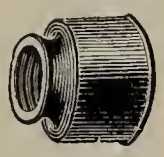
Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Price	4	4	6	9	12	18	24	36	55	90	1 40

NOTE.—For list of *Cast-Iron* Fittings see pages 12 and 13.

MALLEABLE IRON FITTINGS.

LOCK-NUTS.

Size	¼	⅜	½	¾	1	1¼	1½	2
Price	3	4	5	7	9	12	15	20

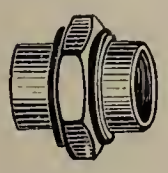


REDUCERS.

Size	⅜	½	¾	1	1¼	1½	2	2½	3	4
Price	5	6	10	15	23	35	50	80	1 10	2 05

COUPLINGS—R. and L.

Size	¼	⅜	½	¾	1	1¼	1½	2
Price	4	5	8	12	18	24	32	50



UNIONS.

Size	¼	⅜	½	¾	1	1¼	1½	2	2½	3	4
Price	22	24	28	32	40	50	65	1 00	1 80	2 80	7 40

RETURN BENDS.

Size	½	¾	1	1¼	1½	2	2
Price	12	20	32	50	72	1 10	1 25
Distance between Centers, inches	1¼	1½	1⅞	2¼	2½	3	4

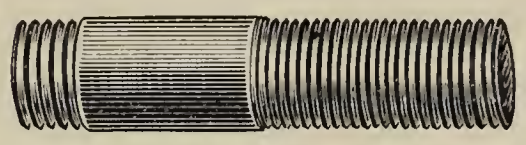
NOTE.—For list of Cast-Iron Fittings see pages 13 and 14.

WROUGHT IRON FITTINGS.

COUPLINGS, R. H.

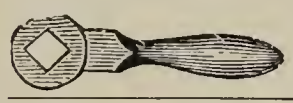
Size	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Price	3	3	4	5	6	8	10	13	19	35

Size	3	3 1/2	4	4 1/2	5	6	7	8	9	10
Price	50	72	95	1 25	1 50	2 15	3 00	3 50	5 00	7 50



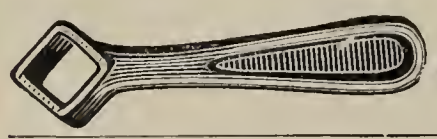
LOCK-NUT NIPPLES.

Size, inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Standard length, in.	5	5	5 1/2	6	6	7 1/2	8 1/2	9	10	12
Price, standard length or shorter	14	16	18	24	30	45	55	75	1 50	2 50
Price, 6 inches long	15	17	19							
" 7 " "	16	18	20	26	34					
" 8 " "	17	19	21	27	36	53				
" 9 " "	18	20	22	28	38	56	71			
" 10 " "	19	21	23	29	40	59	75	1 00		
" 11 " "	20	22	24	30	42	62	79	1 05	2 05	
" 12 " "	21	23	25	31	44	65	83	1 10	2 15	



STEAM AND GAS COCK WRENCHES.

Size Inches	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price, Steam Cock Wrench, net	3	4	5	6	8	10	15	25	50
Price, Gas Cock Wrench, net		3	4	5	7	9	12		

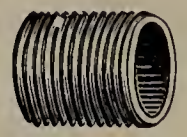


MALLEABLE WRENCHES FOR STEAM COCKS.

Size Inches	1/2	3/4	1	1 1/4	1 1/2	2
Price, each net	4	6	8	10	12	15

WROUGHT IRON FITTINGS.

NIPPLES.



(Close.)

(Shoulder.)

Size	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10
Price, Close	5	5	6	7	9	11	14	18	26	60	75	95	1 20	1 60	2 00	3 60	5 00	6 50	8 25	10 00
" Shoulder	5	5	6	7	9	11	14	18	26	60	75	95	1 20	1 60	2 00	3 60	5 00	6 50	8 25	10 00
" 5 inches long	9	9	10	11	14	17	23	28	40	75	1 00	1 15	1 40	1 80	2 20	3 90	5 50	7 00	9 00	11 00
" 6 inches "	10	10	11	12	15	19	25	32	45	83	1 08	1 32	1 55	1 95	2 35	4 20	6 00	7 50	9 75	12 00
" 7 inches "	12	12	13	14	17	22	30	38	51	90	1 18	1 50	1 70	2 10	2 50	4 50	6 50	8 00	10 50	13 00
" 8 inches "	14	14	15	16	19	25	35	44	57	97	1 28	1 68	1 85	2 25	2 65	4 80	7 00	8 50	11 25	14 00
" 9 inches "	16	16	17	18	21	28	40	50	63	1 04	1 38	1 86	2 00	2 40	2 80	5 10	7 50	9 00	12 00	15 00
" 10 inches "	18	18	19	20	23	31	45	56	69	1 11	1 48	2 04	2 15	2 55	2 90	5 40	8 00	9 50	12 75	16 00
" 11 inches "	20	20	21	22	25	34	50	62	75	1 18	1 58	2 22	2 30	2 70	3 10	5 70	8 50	10 00	13 50	17 00
" 12 inches "	22	22	23	24	27	37	55	68	81	1 25	1 68	2 40	2 45	2 85	3 25	6 00	9 00	10 50	14 25	18 00
R. & L. Short		10	10	12	15	18	24	30	40	95	1 50									

WROUGHT IRON FITTINGS.

LONG SCREWS,
With Coupling and Lock-nut.

Size, inches	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Standard length, inches	5	5	5 1/2	6	6	7 1/2	8 1/2	9	10	12
Price, Standard length	35	40	45	55	65	90	1 05	1 60	2 40	3 20
Price, 6 inches long	36	41	46							
" 7 " "	37	42	47	56	68					
" 8 " "	38	43	48	57	70	92				
" 9 " "	39	44	49	58	72	94	1 05			
" 10 " "	40	45	50	59	74	96	1 10	1 65		
" 11 " "	41	46	51	60	76	98	1 13	1 70	2 45	
" 12 " "	42	47	52	62	78	1 00	1 16	1 75	2 50	

COUPLINGS—TURNED FACED,
For Lock-nut Joints.

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price	10	12	14	17	20	24	30	40	60	80	1 00	1 20

ROUND LOCK-NUTS—TURNED FACED.

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
Price	10	12	14	16	18	20	22	25	30	35	40	50

ROUND BUSHINGS—TURNED FACED.
Cast Iron.

Size	3/4	1	1 1/4	1 1/2	2
Price	11	13	16	19	26

GALVANIZED IRON FITTINGS.

Size	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
Elbows (Mall.)	5	8	12	20	30	40	55	85	1 25	2 25	3 25	4 50			
Tees (Mall.)	7	10	14	24	35	50	70	1 00	1 75	2 75		5 00			
Crosses (Mall.)		12	16	30	45	55	85	1 30	2 75	4 00					
Return Bends, (Mall.)			17	26	45	70	1 00	1 50							
Unions (Mall.)	25	30	35	45	55	75	95	1 50	2 50	3 75					
Reducers (Mall.)		7	8	14	22	32	50	75	1 10						
Caps (Mall.)	6	7	9	12	16	25	35	50	75	1 20					
Plugs (Cast)	6	7	8	9	12	15	22	35	55	90	1 50	2 00	2 50	2 75	3 75
Couplings, (wrought)	4	5	6	8	11	13	17	27	48	65	94	1 10	1 40	1 75	2 60
Nipples short	8	8	9	12	15	20	25	35	70	85	1 20	1 60			
Nipples 5 in. long	13	14	15	20	25	35	40	50	90	1 15	1 50	2 00			

Galvanized Cast Iron Fittings made to order.

LAUNDRY COIL STANDS.

With Movable Hook Plates.

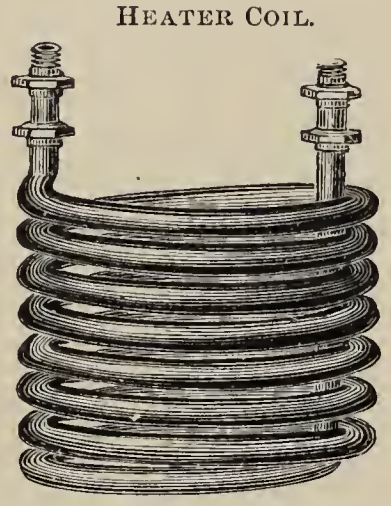
Price, each, for Four Pipes high $2 15

" " Six " " 3 15

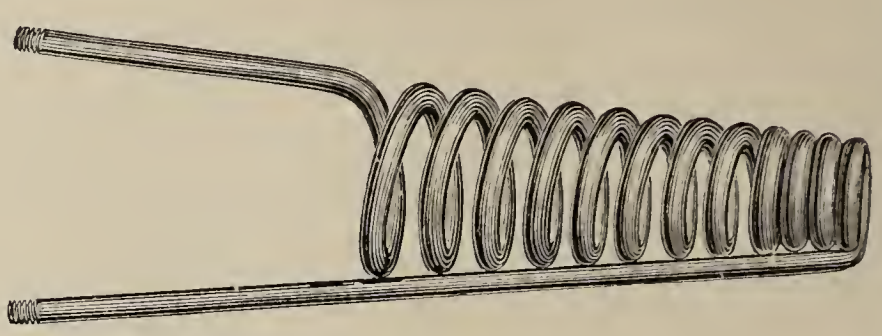
PIPE COILED OF ALL SIZES AND SHAPES OF ORDINARY PIPE.

Extra Strong and Double Thickness to Order.

HEATER COIL.



TUYERE COIL.



Tuyere Coils of superior quality and workmanship, and made to required dimensions. The following sizes have been generally adopted as a standard, a stock of which is kept on hand, viz.:

INSIDE DIAMETER.			INSIDE DIAMETER.		
SMALL END.	LARGE END.		SMALL END.	LARGE END.	
3 inch.	5 inch.	6 Pipes High.	$3\frac{1}{2}$ inch.	6 inch.	7 Pipes High.
$3\frac{1}{2}$ "	$5\frac{1}{2}$ "		5 "	7 "	
4 "	6 "		$5\frac{1}{2}$ "	$7\frac{1}{2}$ "	
$4\frac{1}{2}$ "	$6\frac{1}{2}$ "		6 "	8 "	
5 "	7 "				
$5\frac{1}{2}$ "	$7\frac{1}{2}$ "				
6 "	8 "				

Price per Foot : $\frac{3}{4}$ inch Pipe, 20c.; 1 inch Pipe, 25c.

Tuyere Coils made to specified dimensions at a reasonable advance on above price.

Tuyere (with Coil) Castings per pound,.....cents.

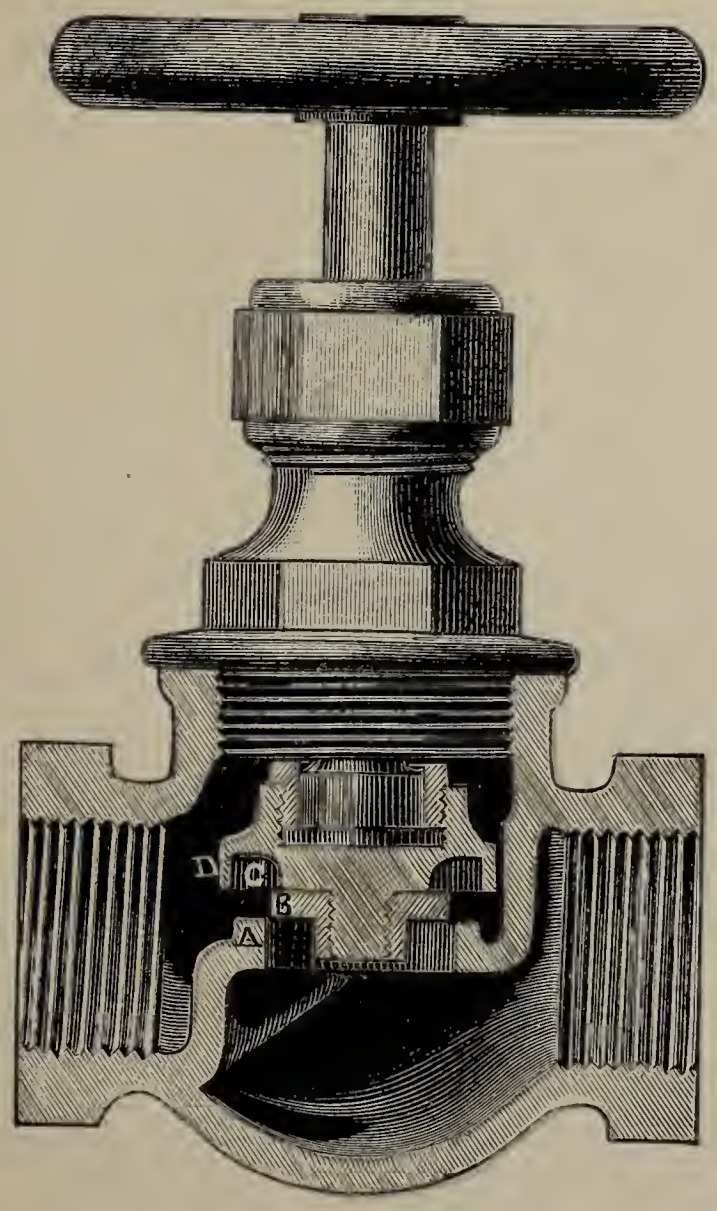
The price of Heater Coils furnished on application.

Arch Block Tymph Coils, etc., made to order.

CRANE'S PATENT VALVE,

WITH

FRINK'S PATENT DISCS.



Valves constructed with Frink's Patent Composition Discs have been manufactured by several firms in the East under other additional patents for supporting the Discs. The Frink Patent Composition is composed principally of rubber, the nature being such as to yield to the pressure (a little) when heated by steam, thereby getting the same results as with Compression Water Cocks.

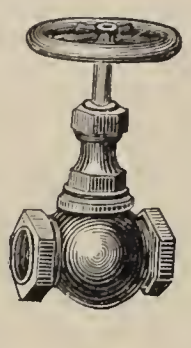
Our patent consists in holding the discs between *solid* walls in combination with the raised seat, by which the discs are *much better protected* than in any other method

With our large experience in the use of the Eastern valves, we feel warranted in asserting that our improvements can not fail to make the valve entirely satisfactory.

Size	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Brass Globe and Angle Valves (Crane's Patent)	2 75	3 60	5 00	6 75	10 75

EXTRA DISCS.

Size	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, net	18	20	30	40	60



GLOBE AND ANGLE VALVES—BRASS.

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price	85	85	95	1 15	1 65	2 20	3 00	4 00	6 50	15 00

($\frac{3}{4}$ inch and larger sizes furnished with Loose Disc if desired.)

THE "CRANE" GLOBE VALVE—BRASS.

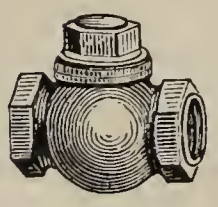
Loose Disc.

Size, inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price	2 75	3 60	5 00	6 75	10 75

These Valves are extra heavy, and made of superior hard and strong metal.

CROSS VALVES—BRASS.

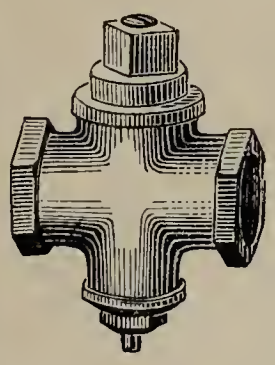
Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price	1 50	1 75	2 40	3 10	4 00	5 25	9 00



CHECK VALVES—BRASS.

Horizontal, Angle and Vertical.

Size	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price	70	70	70	95	1 30	1 75	2 50	3 40	5 75

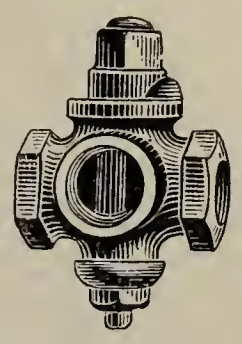


STEAM COCKS—BRASS.

Flat or Square Heads.

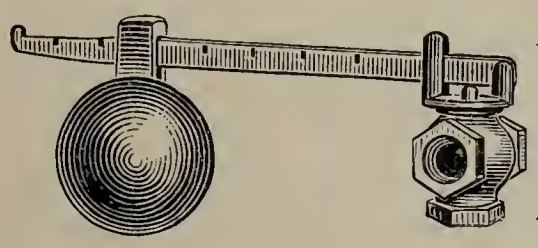
Size, inches	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3
Price	90	90	1 00	1 40	1 90	2 60	3 70	5 10	7 50	15 50	25 00
Price, with Check and Waste				1 70	2 30	3 15	4 40	5 90	8 50	16 90	26 40

THREE-WAY COCKS—BRASS.



Size, inches	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2
Price	2 00	3 00	4 00	5 25	6 75	9 25	19 00

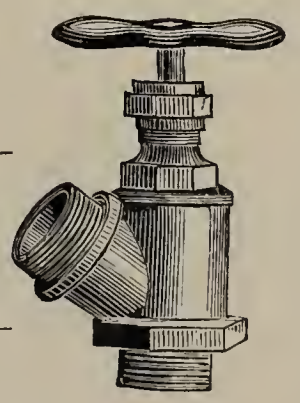
SAFETY VALVE—BRASS.



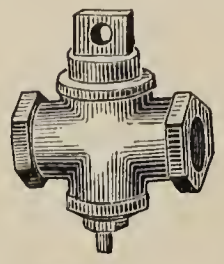
Size	1/4	3/8	1/2	3/4	1
Price	2 50	2 75	3 00	3 50	4 50

HOSE VALVES—BRASS.

With Loose Swivel and Leather Disc.



Size	1 1/2	2	2 1/2
Price	5 25	7 50	11 00



GAS SERVICE COCKS—BRASS.

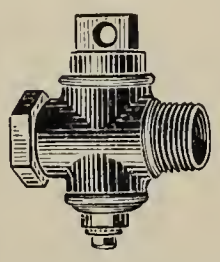
Size	¼	⅜	½	¾	1	1¼	1½	2
Price	70	80	90	1 15	1 40	2 30	3 25	4 70

GAS SERVICE COCKS—BRASS.

With Stops, Heavy.

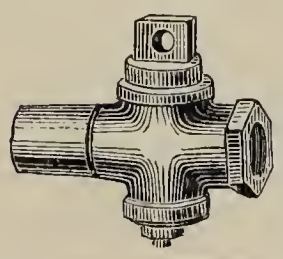
Size	½	¾	1	1¼
Price	1 05	1 55	2 40	3 25

GAS SERVICE COCKS—BRASS.



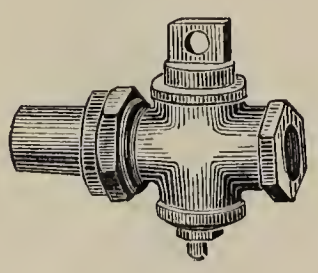
Male and Female.

Size	½	¾	1	1¼	1½	2
Price	1 30	1 40	1 65	2 60	3 65	5 20



GAS METER COCKS—BRASS.

Size	¼	⅜	½	¾	1	1¼	1½	2
Price	70	80	90	1 15	1 40	2 30	3 25	4 70

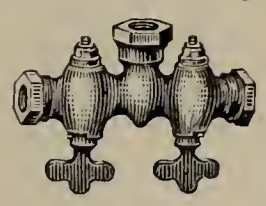


UNION METER COCKS—BRASS.

Size	½	¾	1	1¼	1½	2
Price	1 25	1 60	2 50	3 50	4 50	5 50

GAS FIXTURE COCKS.

Heavy for Factory Use.



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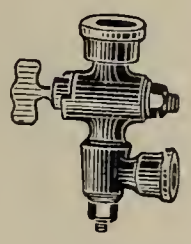

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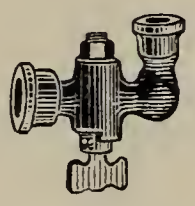

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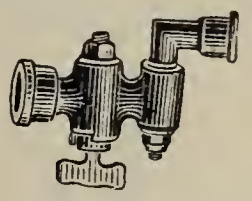

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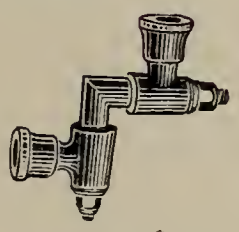

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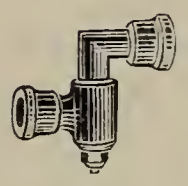


No. 6.

No. 7.

Size ..... Inches	1/8 x 1/8	1/4 x 1/8	1/8 x 1/4	1/8 x 3/8	1/4 x 1/4	1/4 x 3/8	3/8 x 1/4	3/8 x 3/8	3/8 x 1/8
No. 1 Double Pendant Cock ..... Price			1 50	1 50		1 50			
No. 2 Swing Pendant Cock ..... Price		1 25					1 25		
No. 3 Pendant Cock ..... Price									1 00
No. 4 Bracket Back Swing Joint ... Price		1 25					1 25		
No. 5 Double Swing Joint ..... Price		1 00					1 00	1 00	
No. 6 Single Swing Joint ..... Price	80	80			80		80	80	
No. 7 Burner Ells ..... Price	25	25							

GAS BURNERS AND TIPS.

Iron Burners, Fishtail or Batwing	Price per Gross, net	$4 00
Lava Tip, " " "	" " " "	3 00
Brass Pillars	" " " "	4 00

LAMP POST COCKS.

Size	1/4	3/8	1/2	3/4
Price	75	80	85	95

ALCOHOL COCKS FOR METERS.

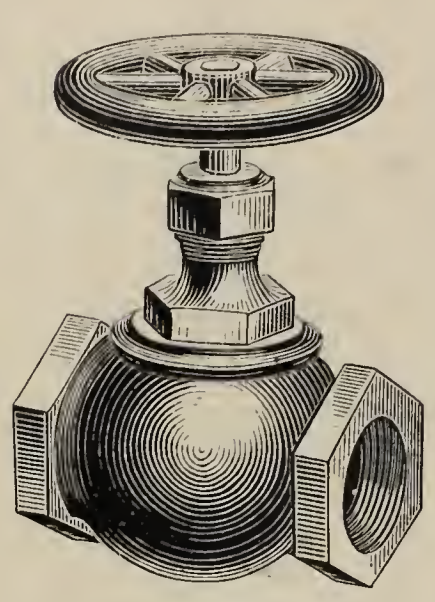
Size ..... 3/8 inch. | Price $1 10

GAS FITTERS' HOOKS.

Wrought Iron.

Size of Pipe	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Hooks, per 100, net	70	75	80	1 00	1 20	1 50	2 00	2 50

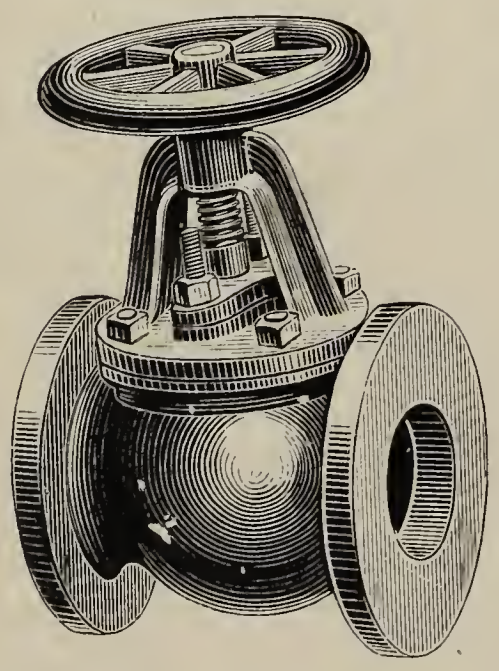
Gas Fitters' Cement, per pound ..... 25 cents.



IRON GLOBE AND ANGLE VALVES.

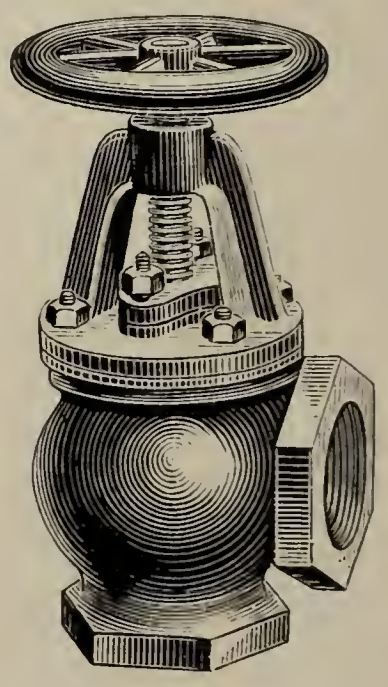
Brass Mounted, with Brass Center Piece.

Size ..... inches	2½	3
Price, Screw Ends	9 75	13 50
Price, Flange Ends	11 75	15 50
Diameter of Flange, Inches	6½	7½
Length from face to face of Flange, inches	6½	7½

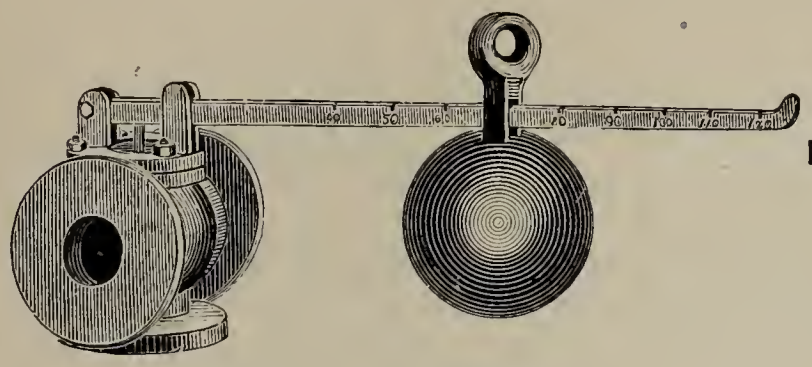


IRON GLOBE AND ANGLE VALVES. WITH YOKE.

Brass Mounted.



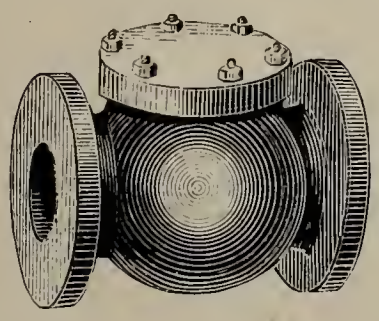
Size ..... inches	3½	4	4½	5	6	7	8	10	12
Price, Screw Ends	18 50	24 50	30 50	36 50	48 00				
Price, Flange Ends	20 50	26 50	32 50	39 50	51 00	88 00	118 00	220 00	350 00
Diameter of Flange, inches,	8½	9	9¾	10½	12	14	14	20	20
Length face to face of flange	9	10	12½	12¼	14	17½	19	24¼	26¾



IRON SAFETY VALVES.

Brass Mounted.

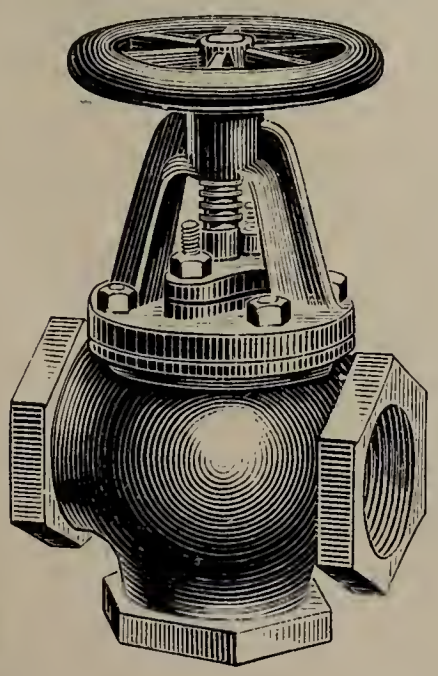
Size	1¼	1½	2	2½	3	3½	4	4½	5	6	7	8
Price, Screw Ends	5 50	6 50	9 00	14 00	19 00	25 00	31 00	38 00	46 00	56 00		
Price, Flange Ends				16 00	21 00	27 00	33 00	40 00	49 00	59 00	120 00	155 00
Diam. Flange, inches				6½	7½	8½	9	9¾	10½	12	14	14
Length face to face Flange				7½	9	9	10	12½	12¼	14	17½	19



IRON CHECK VALVES.

Brass Mounted.

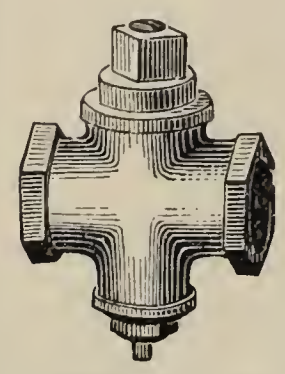
Size	2½	3	3½	4	5	6
Price, Screw Ends	8 00	10 00	15 00	20 00	34 50	46 00
Price, Flange Ends	10 00	12 00	17 00	22 00	37 50	49 00
Diameter of Flange inches	6½	7½	8½	9	10½	12
Length from face to face of Flange	6½	7½	9	10	12¼	14



IRON CROSS VALVES.

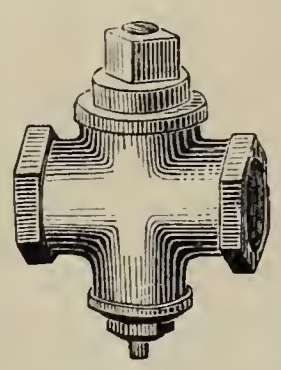
Brass Mounted.

Size	2½	3	4
Price, Screw Ends	12 00	16 00	35 00



IRON COCKS.

Size	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4
Price	1 00	1 05	1 30	1 50	2 30	3 20	4 60	7 10	10 00	14 50	20 00

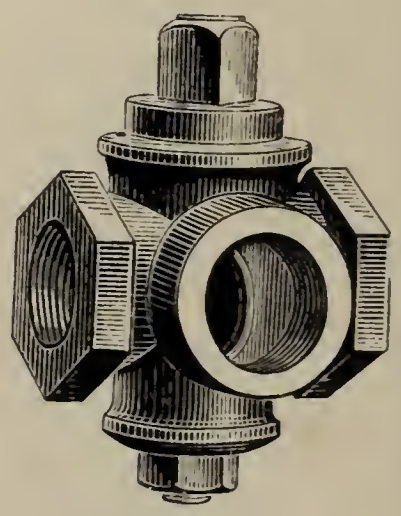


IRON COCKS.

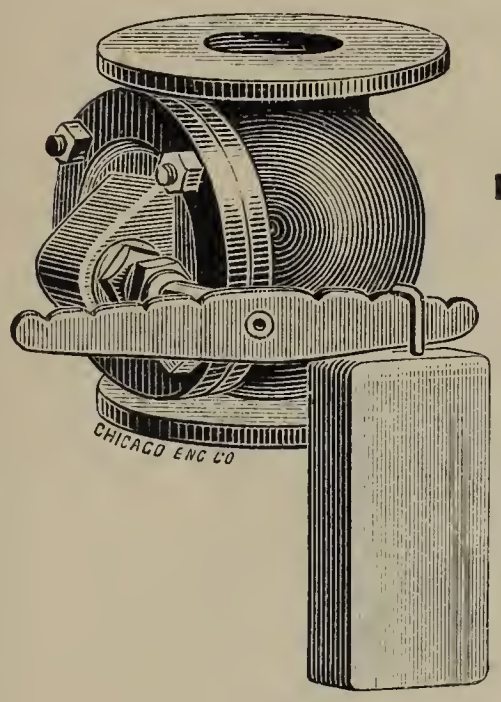
With Brass Plug.

Size	¾	1	1¼	1½	2	2½	3
Price	2 10	2 80	4 00	6 50	9 00	14 50	22 00

IRON THREE-WAY COCKS.



Size	1	1¼	1½	2	2½	3	4
Price, Screw ends	2 00	3 00	5 00	7 00	10 50	17 50	32 00
Price with Brass Plug, Screw ends	3 10	4 30	6 90	9 50	15 50	24 00	

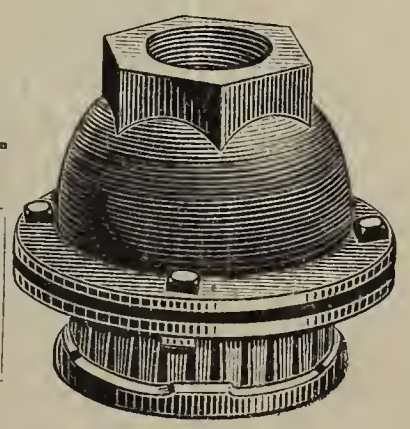


BACK PRESSURE VALVES.

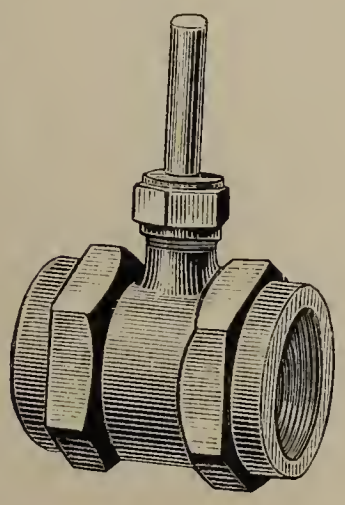
Brass Mounted.

Size	2	3	4	5	6
Price, Screw ends	9 50				
Price, Flange ends		15 00	22 00	33 00	54 00

FOOT VALVES—WITH STRAINER.



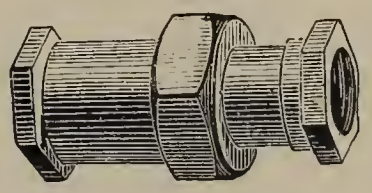
Size	1¼	1½	2	2½	3	4	5	6
Price	3 00	3 50	4 25	5 50	7 00	9 00	15 00	21 00



BUTTERFLY VALVES.

Size	1	1¼	1½	2	2½	3	4
Price, Brass	5 00	6 00	7 00	10 00	13 00		
Price, Iron						16 00	24 00

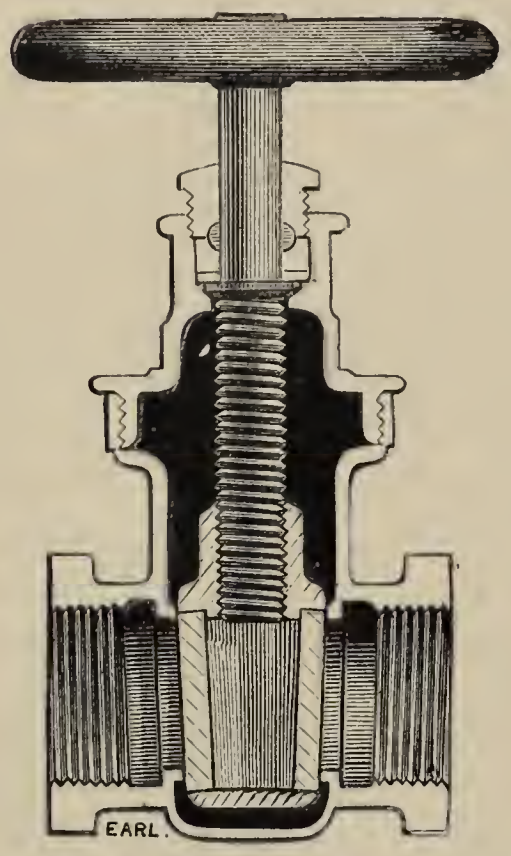
EXPANSION JOINTS.

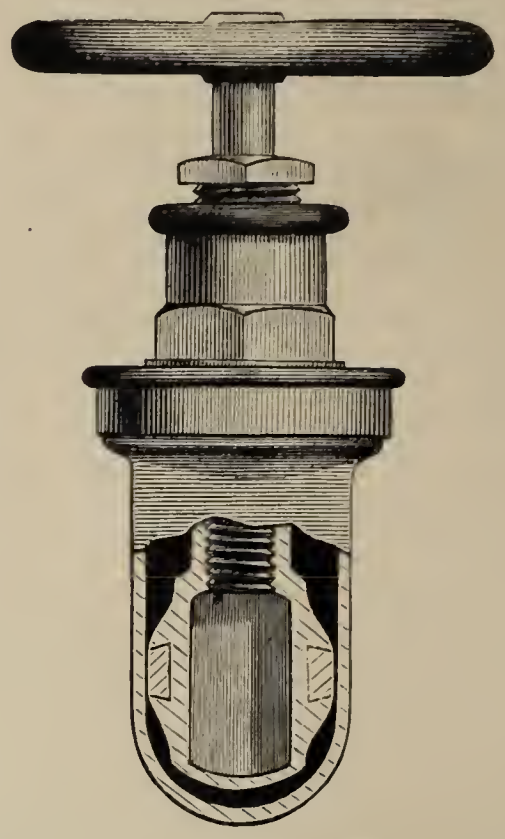


Size	¾	1	1¼	1½	2	2½	3	3½	4	5
Price, Brass	2 75	3 50	5 50	6 50	8 50					
Price Iron, Brass Sleeve						6 50	9 50	12 50	15 50	45 00
Traverse Inches	1 12	1½	1½	1 12	1½	2¼	2½	2½	3½	6

VALVES.

FLOWER'S PATENT STOP VALVES.



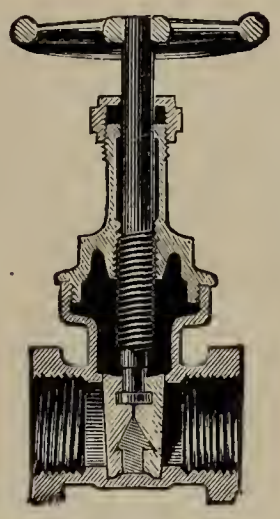


BRASS.

Size	½	¾	1	1¼	1½	2	2½	3
Price	2 00	2 30	3 30	4 60	6 00	9 00	18 00	28 00

IRON BODY, BRASS MOUNTED.

Diameter of Valve	Diameter of Flange.	From face to face of Flange.	From end to end of Pipe when laid in Bell of Valve.	Price, Flanged Ends.	Price. Screwed Ends.
2½					15 00
3	7	8	4¼	20 00	19 00
3½	8	8		22 00	21 00
4	9	10	6	25 00	24 00
5	10	10¼		32 00	31 00
6	11	12	6	38 00	37 00
7	12	12		44 00	
8	13	12¾	6¾	52 00	
10	16	13¾	7¾	70 00	
12	18	15¼	9⅝	100 00	
14	20	15¾	9⅝	150 00	



VALVES.

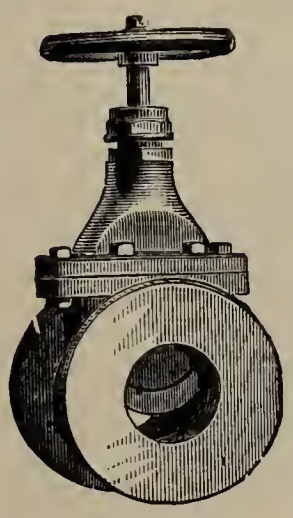
PEET'S PATENT DOUBLE-DISC GATE VALVES.

BRASS.

Size.....inches	¼	⅜	½	¾	1	1¼	1¼	2	2½	3
Price.....	1 00	1 00	1 20	1 75	2 50	3 50	5 00	7 50	15 00	22 00

IRON BODY PEET VALVES.

Brass Mounted—Best Steam Metal.



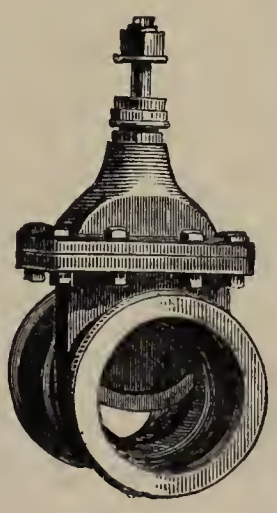
Size.	Diameter of Flanges.	Distance from Face to Face.	Price. Flanged or Screw Ends.
2½ inches.	7 inches.	7¾ inches.	$12 00
3 "	7 "	8 "	15 00
3½ "	8 "	8¾ "	18 00
4 "	9 "	9½ "	20 00
5 "	10 "	10½ "	25 00
6 "	11 "	12 "	30 00
7 "	13 "	13 "	40 00
8 "	14 "	14 "	50 00
10 "	16 "	15 "	65 00
12 "	18 "	16 "	90 00

NOTE.—When ordering Valves, be sure and state whether FLANGED or SCREW ends are wanted.

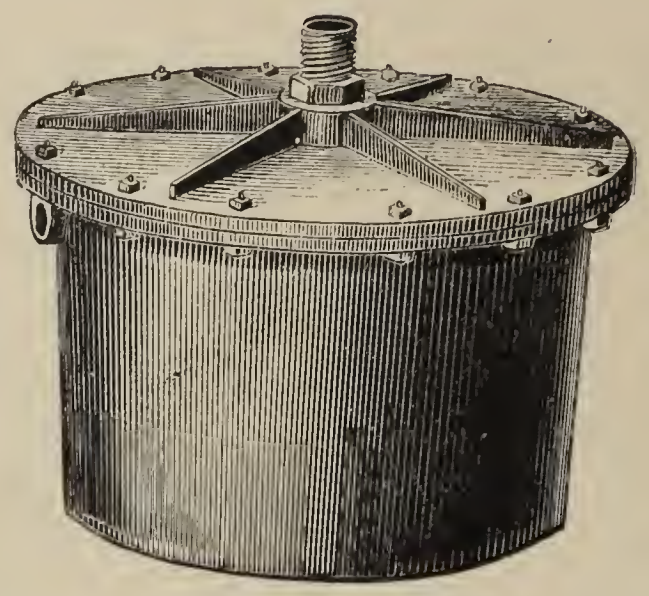
IRON BODY WATER GATES.

Brass Mounted.

Size.	Price.
3 inches	$15 00
4 "	20 00
6 "	30 00
8 "	50 00
10 "	65 00
12 "	90 00



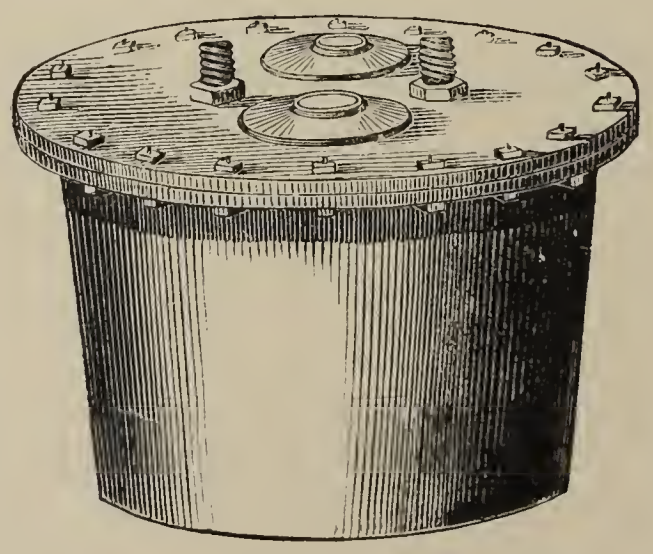
STEAM TRAPS.



Size	12 inch.	15 inch.	18 inch.
Price	23 00	36 00	54 00
Capacity one inch Pipe, feet	1,500	3,500	5,000

WATER HEATERS.

For Steam Boilers.



Size	12 inch.	15 inch.	18 inch.
Price	26 00	40 00	53 00

Gas and Steam Fitters' Tools, Etc.

SCREW PLATES WITH SOLID DIES.

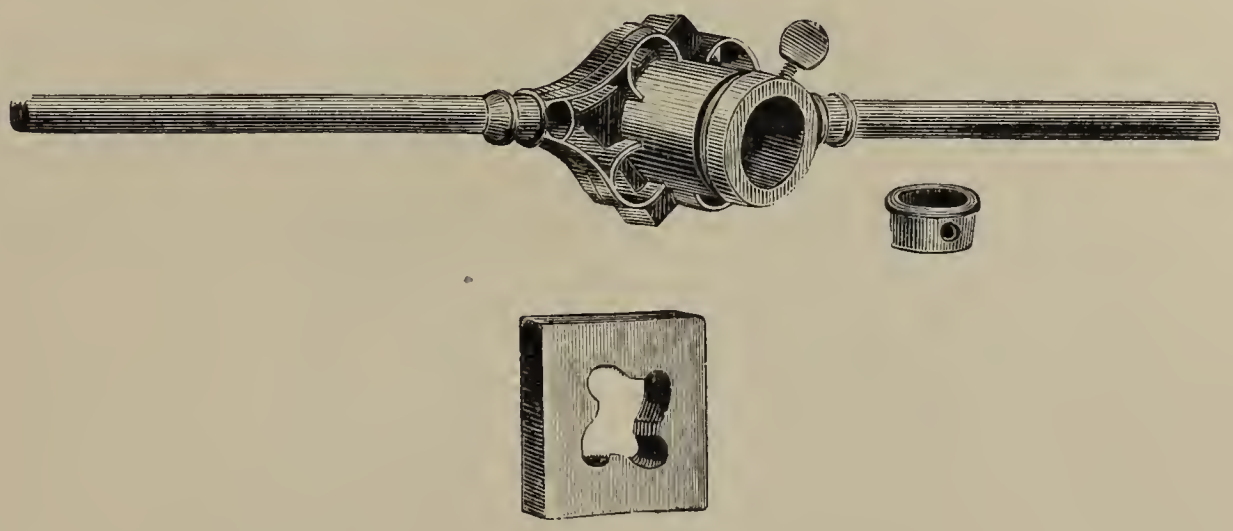


Plate.	Cuts Inclusive.	Dimensions of Dies.	Price Complete.	Price Without Dies.	Price of Each Die.
"B,"	$\frac{1}{4}$ to 1 inch,	$2\frac{3}{8}$x$\frac{3}{4}$ inch,	$14 00	$5 00	$1 80
"C,"	$\frac{1}{4}$ to 1 "	$2\frac{1}{2}$x$\frac{3}{4}$ "	14 00	5 00	1 80
"D,"	1 to $1\frac{1}{2}$ "	3 x $\frac{7}{8}$ "	15 00	6 75	2 75
"E,"	$1\frac{1}{4}$ to 2 "	4 x $\frac{7}{8}$ "	17 50	7 45	3 35
"G,"	$2\frac{1}{2}$ to 3 "	Cutter Dies,	45 00		

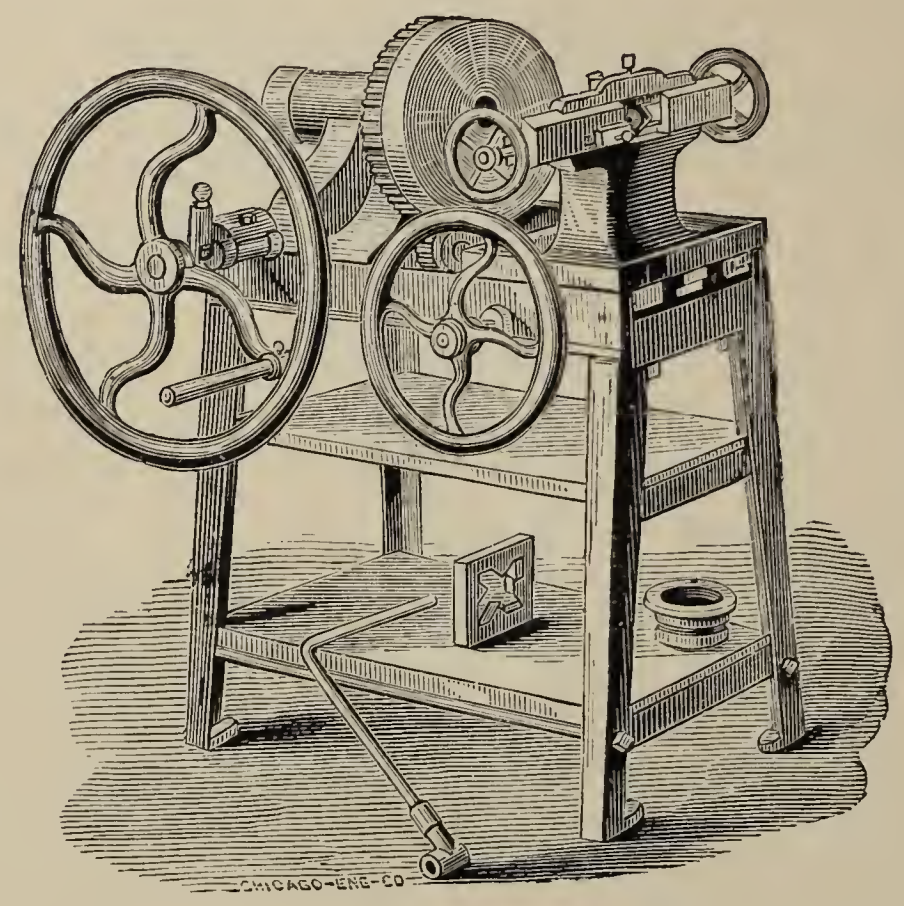
The "E" and "G" Screw Plates have Leader Screws.

The bodies of the "B," "C," "D," and "E" Plates are made of malleable iron, and are as light as is consistent with the strength required. Handles of wrought iron pipe.

EXTRAS.

Bushings, Each, Net, Plate B, C, D, E,	Caps, Each, Net, Plate B, C, D, E,	Thumb Screws, Each Net, Plate B, C, D, E,	Leader Screws, Each, Net, Plate E, G,	Screws for holding Leader. Each, Net, Plate E, G,	Bushing for Leader, Each, Net, Plate G.	"4x4" Frame for C. Dies, to use with E. Plate. Each, Net.
25c. 40c.	20c. 30c.	15c.	$1 25. 2 50	40c. $1 00	$1 75	20c.

IMPROVED GAS PIPE CUTTING AND SCREWING MACHINE.

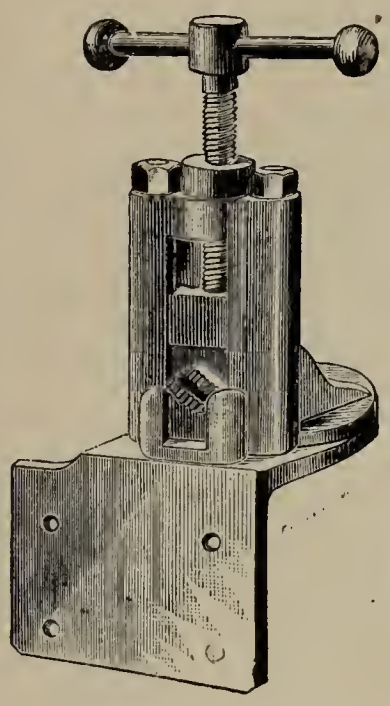


Hand Machine.

Cutting and Screwing Pipe from $\frac{1}{4}$ inch to 2 inches inclusive, with Universal Chuck, Fly Wheel, Bushings, and Right-Hand Solid Dies complete $175 00

Power Machine.

Cutting and Screwing Pipe from $\frac{1}{4}$ inch to 2 inches inclusive, with Universal Chuck, Cone Pulleys, Counter Shaft, Bushings, and Right-Hand Solid Dies complete $210 00



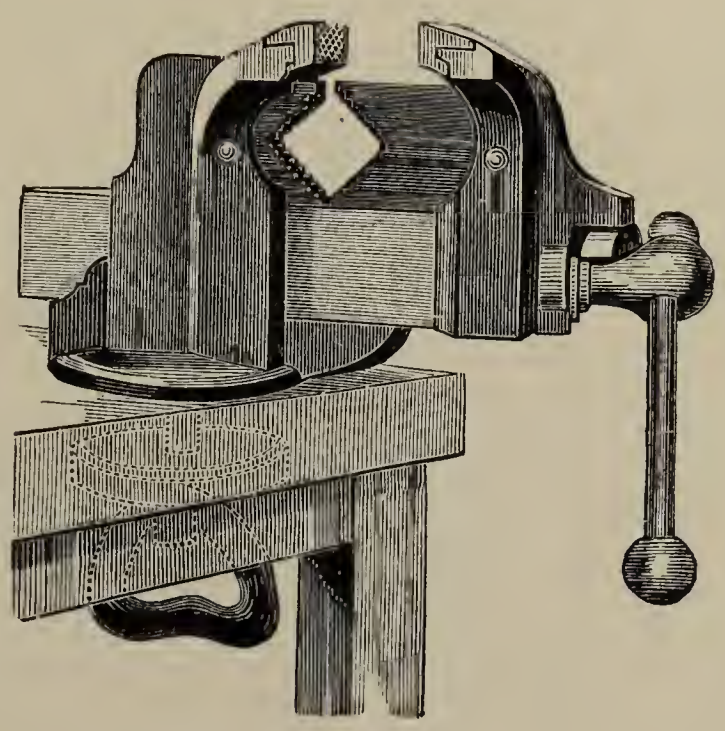
PIPE VISES.

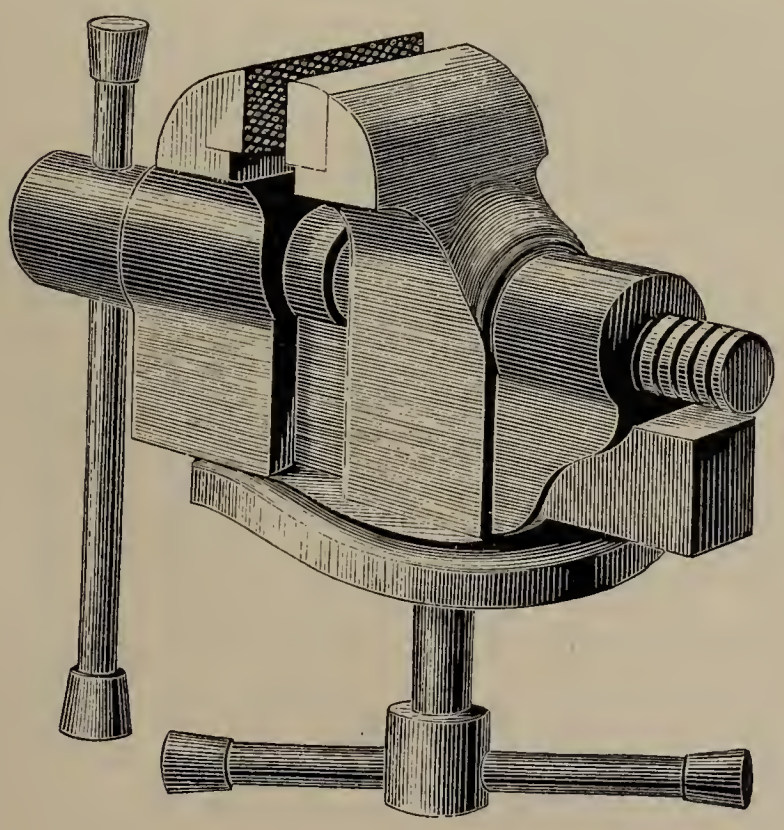
With Angle Plate.

	No. 1.	No. 2.
Holds Pipe from.....	$\frac{1}{8}$ to 2 inch.	$\frac{1}{8}$ to 3 inch.
Price	12 00	20 00

SMITH'S PATENT COMBINATION VISE.

	No. 1.	No. 2.
Holds Pipe from	$\frac{1}{8}$ to 2 inch.	$\frac{1}{8}$ to 3 inch.
Price	16 00	24 00



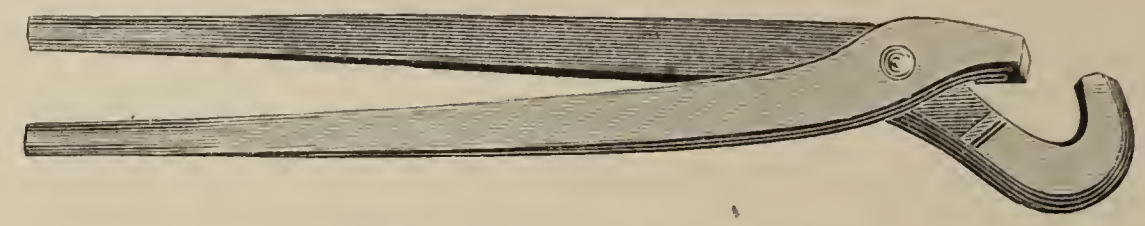


BENCH VISE.

(Five Inch Jaw.)

No. 1 holds Pipe from $\frac{1}{8}$ to 6 inches, Price..$24 00

PIPE TONGS.



Made extra heavy and strong.

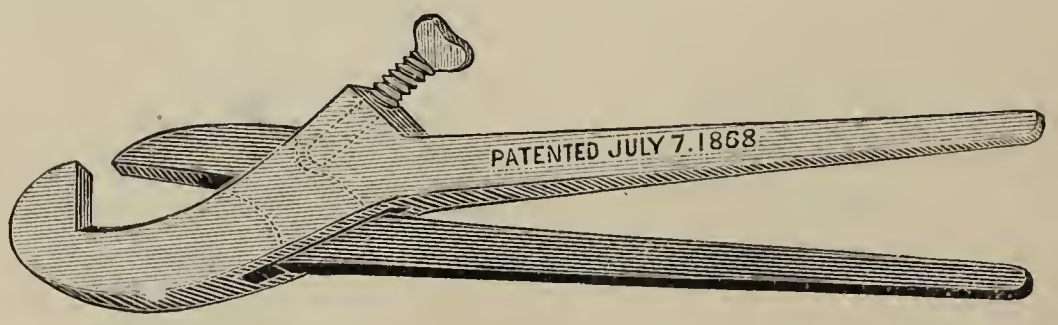
Size, INCHES,	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Price	1 10	1 10	1 10	1 20	1 30	1 50	1 80	2 30	2 80	4 00	4 50	5 25	6 00	7 00	8 00	10 00

RADIATOR PIPE TONGS.

Steel Face and Back.

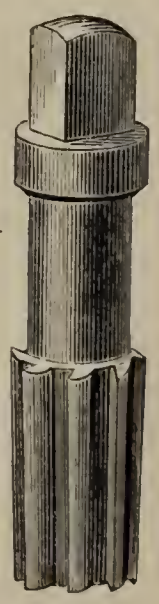
Size.....inches,	¾	1	1¼	1½
Price	4 00	4 50	5 00	6 00

BROWN'S ADJUSTABLE PIPE TONGS.



Number	1	2	3	4	5	6
Takes Pipe from	⅛ to ¾	½ to 1¼	1 to 2	1½ to 3	2½ to 4	3 to 6
Price	3 00	4 00	5 00	9 00	12 00	25 00

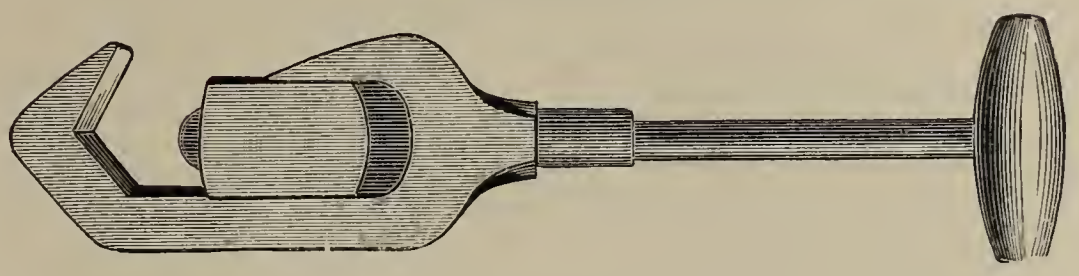
TAPS AND REAMERS.



Size, in.	⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3
TAPS, Price..	75	85	1 00	1 25	1 65	2 15	2 50	3 15	4 25	7 00	10 00
REAMERS, Price..	75	85	1 00	1 25	1 65	2 15	2 50	3 15	4 25	7 00	10 00

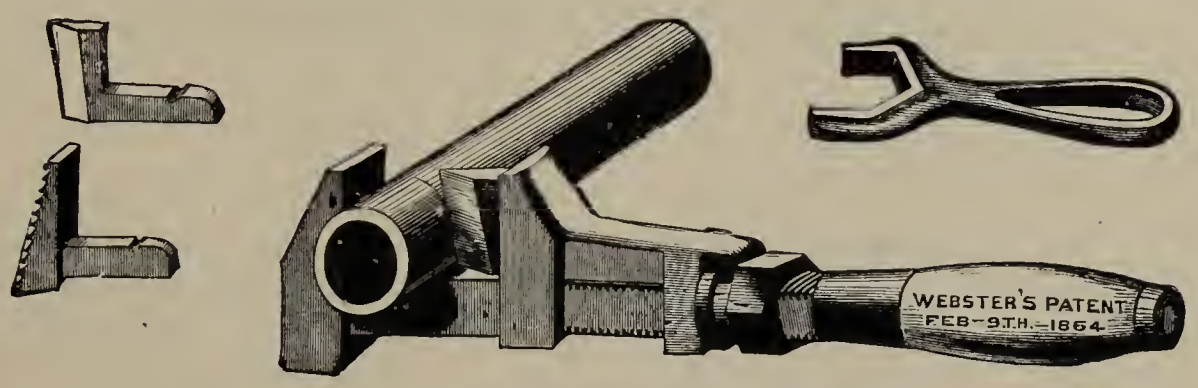
STANWOOD PIPE CUTTERS.

(Case Hardened.)



Numbers	1	2	3
Cuts Pipe from	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 2	2 to 3
Price	7 50	9 00	18 00
Price, Cutter Wheels	40	50	75
Price, Cutter Blocks and Wheels	75	1 00	1 75

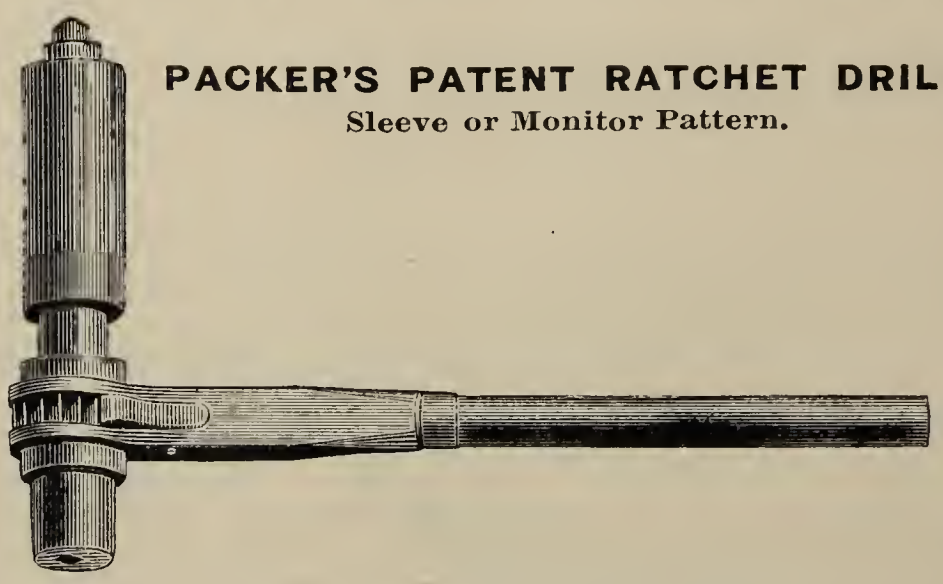
WEBSTER'S PATENT COMBINED WRENCH, PIPE WRENCH AND PIPE CUTTER.



Size ..... Inches	12	15	18	21
Takes Pipe from	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to $1\frac{1}{2}$	$\frac{1}{8}$ to 2	$\frac{1}{8}$ to $2\frac{1}{2}$
Price, with Tools complete	4 50	5 50	6 50	7 50
Price, Extra Cutters	60	75	75	80
Price, Extra Clasps	60	75	75	80

ROBBINS' PATENT CHAIN PIPE WRENCHES.

Numbers	3	4	5	6
Length of Lever, feet	3	4	5	6
Diameter of Chain	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Average Weight, lbs.	12	24	33	50
Takes Pipe, from	$1\frac{1}{4}$ to 4	2 to 6	$2\frac{1}{2}$ to 8	4 to 10
Price	7 00	10 00	14 00	18 00



PACKER'S PATENT RATCHET DRILLS.

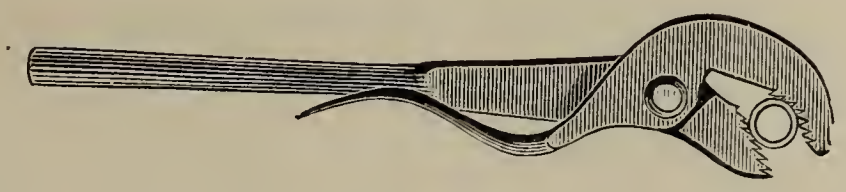
Sleeve or Monitor Pattern.

Numbers	1	2	3	4
Length of Handle, inches	10	12	16	18
Price	10 50	13 50	16 00	19 00

BOILER RATCHETS.

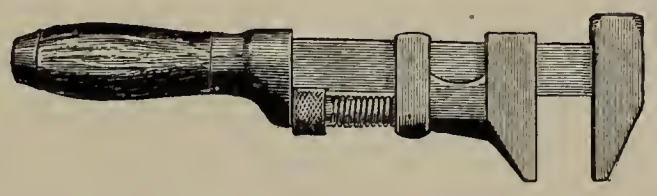
No. 1, Length of Handle, 10 inches ..... Price $ 9 00
" 2, " " " 12 " ..... " 10 50

BARWICK WRENCHES.



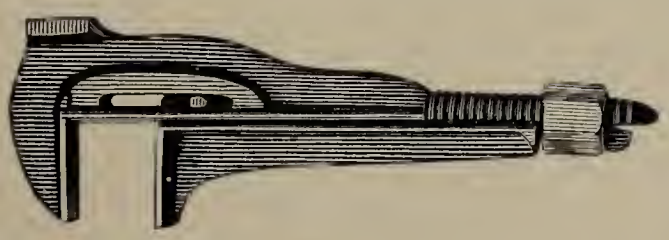
Numbers..	0	1	2	3	4	5
Takes from	No. 7 wire to $\frac{1}{2}$ in. pipe	Gas burner to $\frac{3}{4}$ in. pipe	$\frac{1}{2}$ to $1\frac{1}{4}$ in.	1 to 2 in.	$1\frac{1}{2}$ to 3 in.	$2\frac{1}{2}$ to 4 in.
Price	2 60	3 50	4 50	5 75	10 25	13 50

GIRARD SCREW WRENCHES.

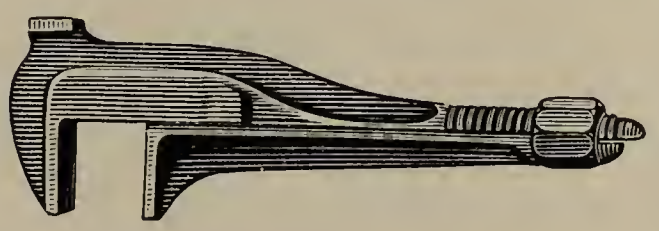


Size ..... Inches	10	12	15	18	21
Price, Black	1 00	1 20	2 00	2 50	3 00

PATENT MALLEABLE IRON SCREW WRENCHES.



No. 1.



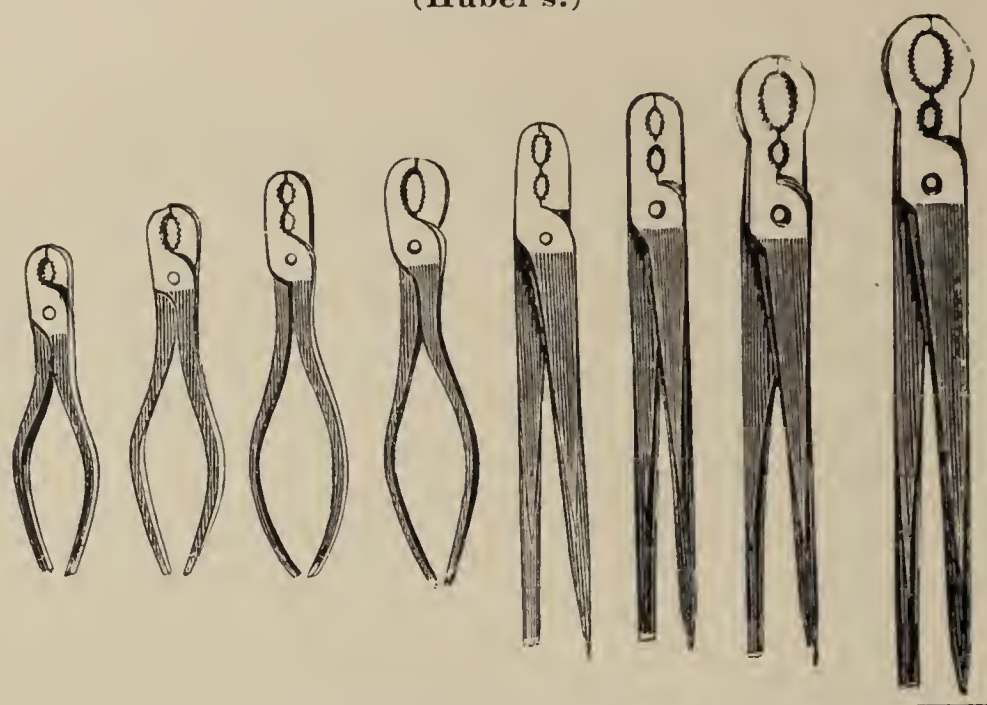
No. 2.

Length ..... Inches	8	10	12
Nos. 1 and 2	25	30	35

We beg to call attention to our Patent Malleable Iron Screw Wrenches, as above shown. Possessing great strength with ease of adjustment, they are undoubtedly, at the prices named, the best value in this line ever offered.

GAS PLYERS.

(Huber's.)

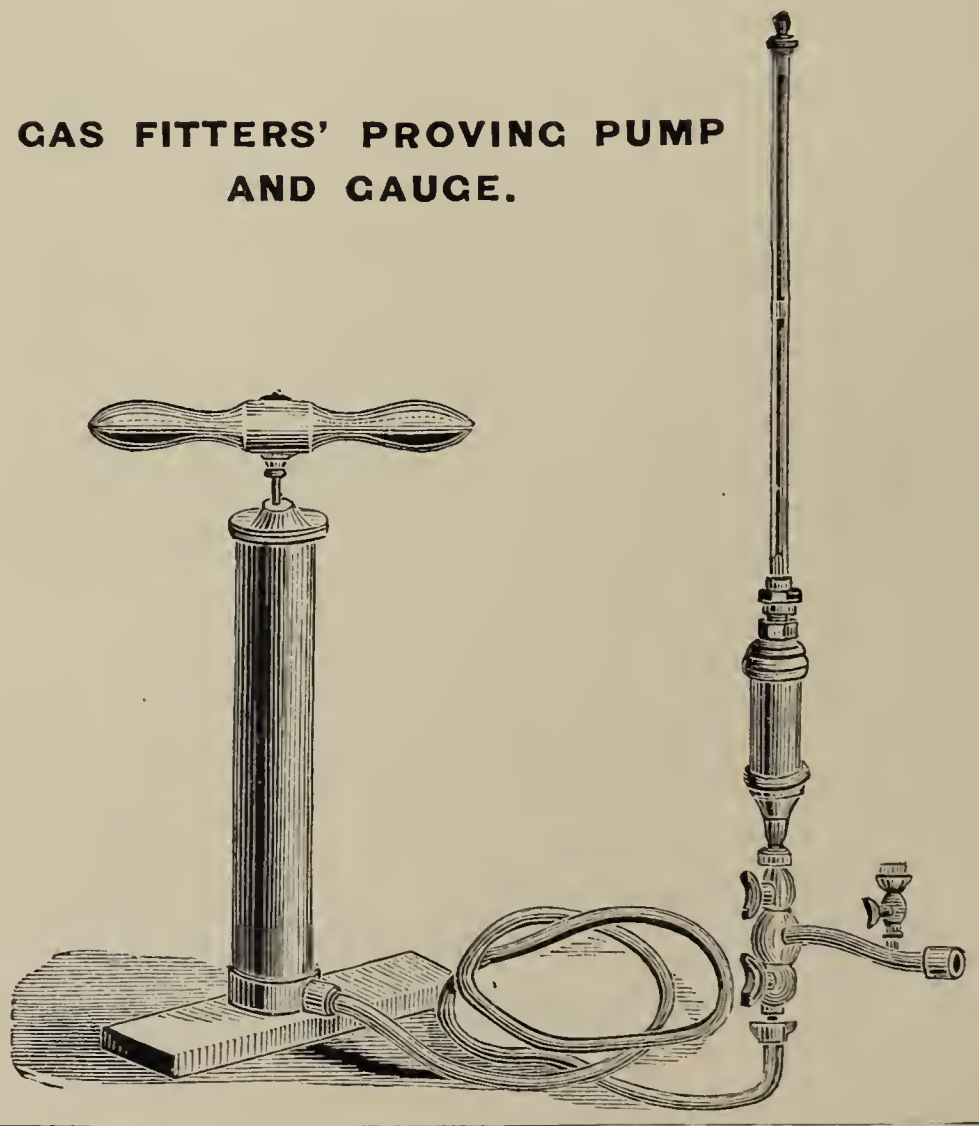


Size ..... inches,	5	6	7	8	9	10	12	14
Price ..... (polished)	75	75	85	1 05	1 20	1 50	2 00	2 40

BURNER PLYERS—TWO HOLES.

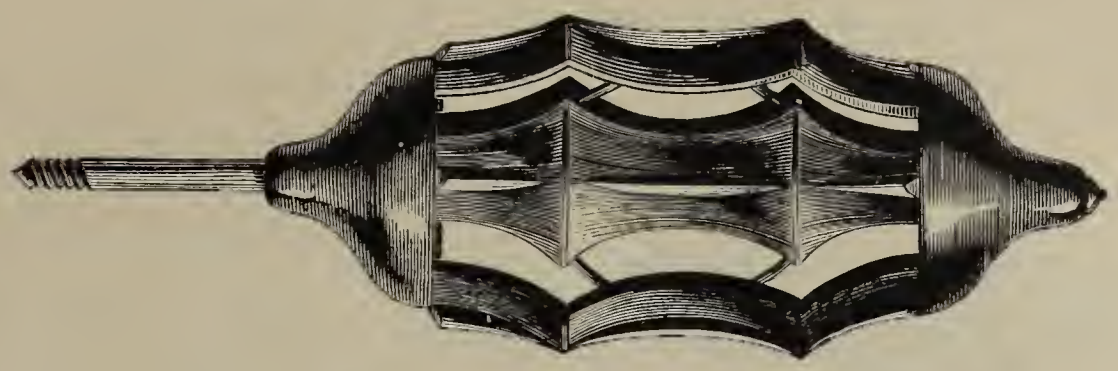
Size, 7½ inch $1 20

GAS FITTERS' PROVING PUMP AND GAUGE.



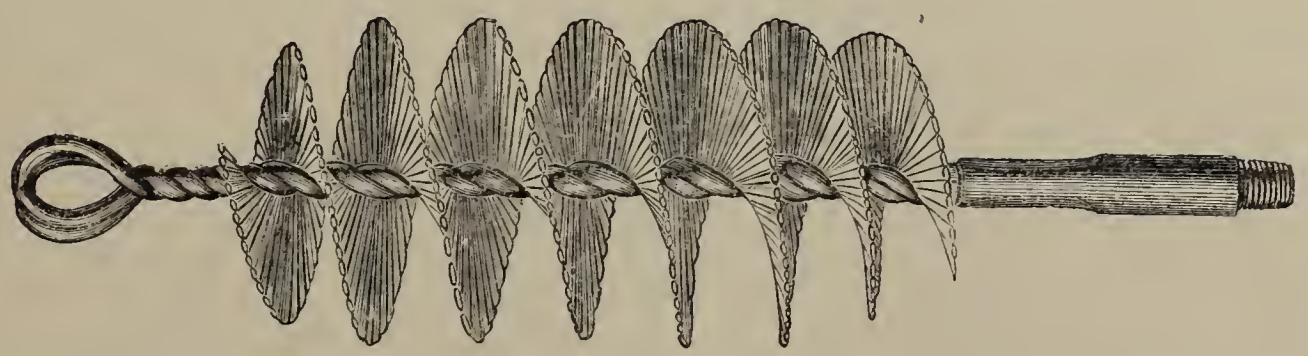
Price $25 00

ELASTIC BOILER TUBE SCRAPERS



Size of Tubes, in.	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4
Price.....	75	90	1 00	1 15	1 30	1 40	1 55	1 65	1 85	1 95	2 10

FLAT STEEL WIRE TUBE BRUSHES.

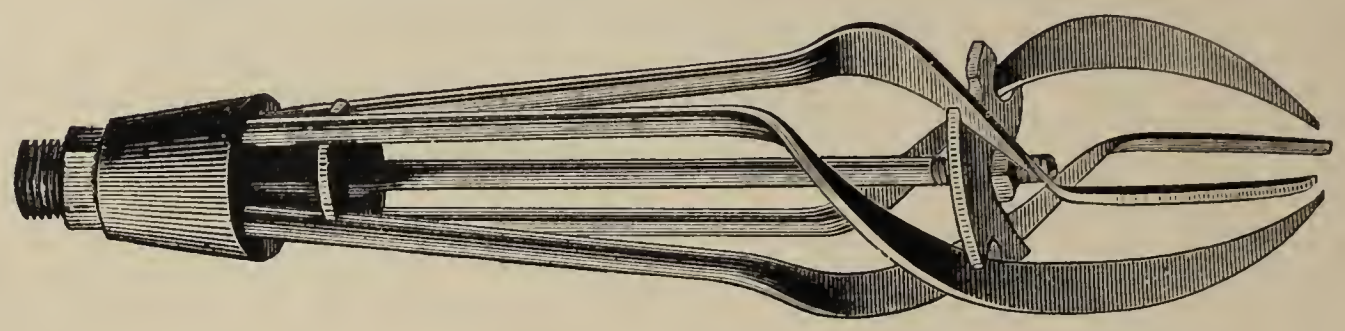


OUTSIDE DIAM. OF TUBE.	DIAMETER OF BRUSH.	PRICE, EACH.
$1\frac{1}{4}$	$\frac{15}{16}$	$1 25
$1\frac{1}{2}$	$1\frac{3}{16}$	1 50
$1\frac{3}{4}$	$1\frac{7}{16}$	1 75
2	$1\frac{11}{16}$	2 00
$2\frac{1}{4}$	$1\frac{15}{16}$	2 25
$2\frac{1}{2}$	$2\frac{2}{16}$	2 50
$2\frac{3}{4}$	$2\frac{6}{16}$	2 75
3	$2\frac{10}{16}$	3 00
$3\frac{1}{4}$	$2\frac{14}{16}$	3 25
$3\frac{1}{2}$	$3\frac{2}{16}$	3 50
$3\frac{3}{4}$	$3\frac{6}{16}$	3 75
4	$3\frac{9}{16}$	4 00

In ordering Scrapers or Brushes, give the outside diameter of the tubes.

The Brushes are calculated to be about one-eighth of an inch smaller than the inside diameter of the tubes.

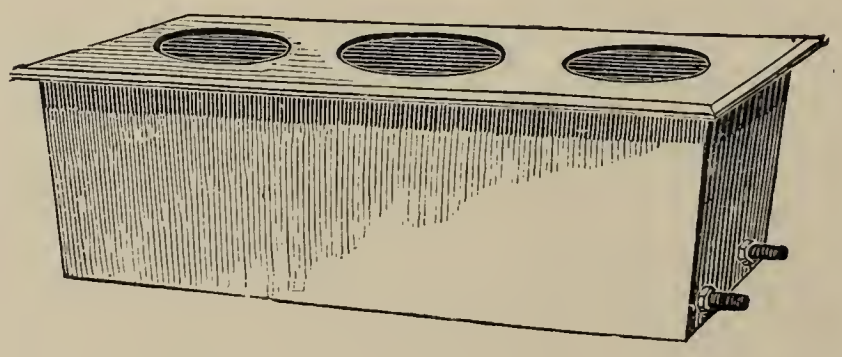
THE JACKSON PATENT FLUE SCRAPER.



Outside Diameter of Tube ..	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	3¾	4
Price, each	1 50	1 75	2 00	2 25	2 50	2 75	3 00	3 25	3 50	3 75	4 00

Does not anneal and collapse when put in a hot boiler. Has four times the scraping surface of other scrapers. Shears out the scale without cutting the metal of the tubes. Does not catch when pushed clear through.

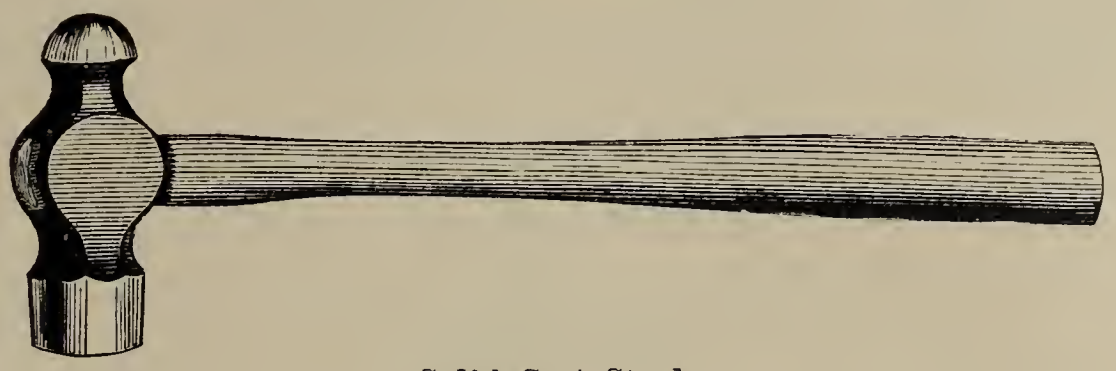
GLUE OR PASTE HEATERS.



Number.	Number of Holes.	Diameter of Holes. Inches.		Size Outside. Inches.	Price.
0	1	11½		15¾x9	12 00
1	3	2 Holes. 6¼	1 Hole. 6¾	24x7¼	12 00
2	11	1 Hole. 11½	10 Holes 4¾	43x18½	40 00

Heaters with holes differing in number and diameter from above, made to order at special prices.

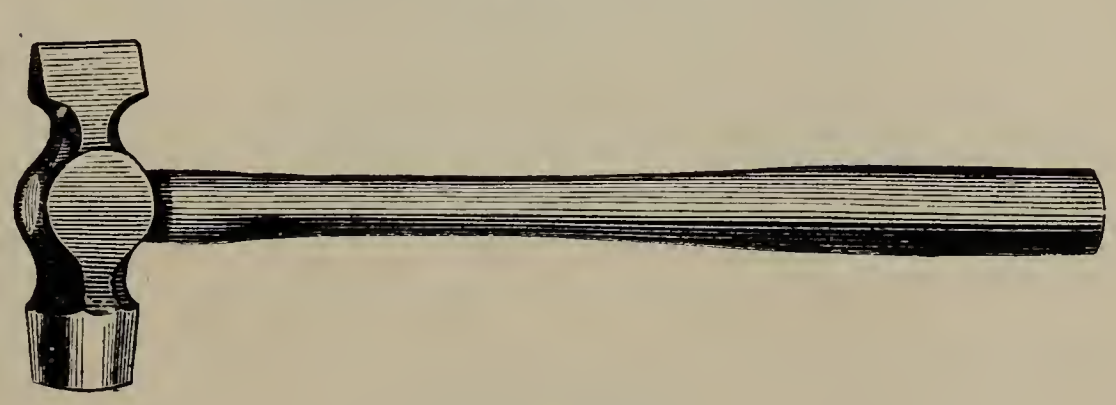
MACHINISTS' HAMMERS (Ball Pane).



Solid Cast Steel.

Numbers	00	0	1	2	3	4	5	6
Price, each	92	1 10	1 20	1 35	1 50	1 70	1 85	2 00
Weight each, pounds	1	1.25	1.50	1.87	2.18	2.50	2.75	3

MACHINISTS' HAMMERS (Straight Pane).



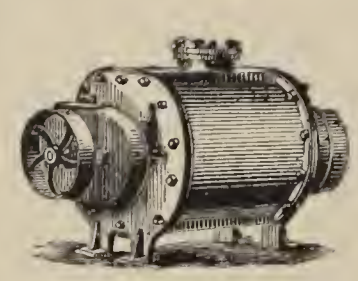
Solid Cast Steel.

List same as Ball Pane.

MACHINISTS' HAMMERS (Cross Pane).

Solid Cast Steel.

List same as Ball Pane.



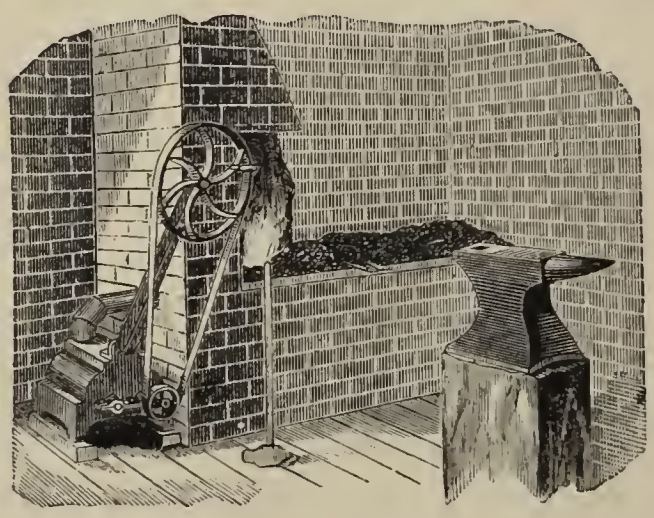
ROOT'S PATENT

ROTARY BLOWERS.

Power Blowers.

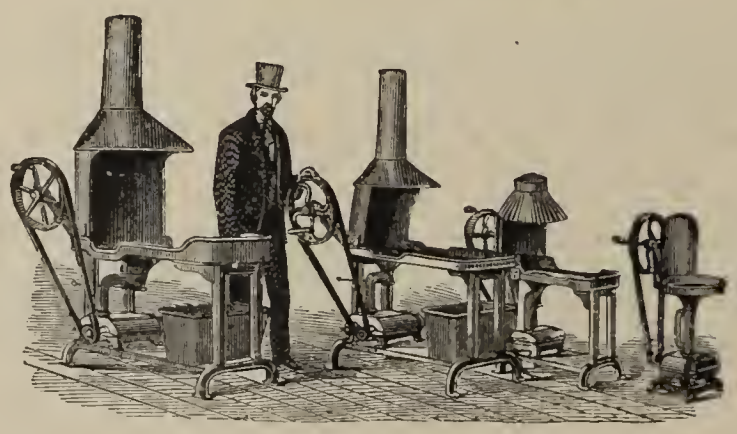
No. $\frac{1}{4}$,	Geared at	both ends,	Double Belted			$	90 00
" $\frac{1}{2}$,	"	"	"	"	"		130 00
" 1,	"	"	"	"	"		185 00
" 2,	"	"	"	"	"		260 00
" 3,	"	"	"	"	"		340 00
" 4,	"	"	"	"	"		450 00
" 5,	"	"	"	"	"		660 00
" 6,	"	"	"	"	"		900 00
" 7,	"	"	"	"	"		1,300 00

BLACKSMITHS' BLOWERS.



No. $\frac{1}{2}$,	Hand Blower,	adapted to one fire,	ordinary size		$	36 00
" 1,	"	"	"	heavy "		45 00
" 2,	"	"	one to two "	" "		70 00

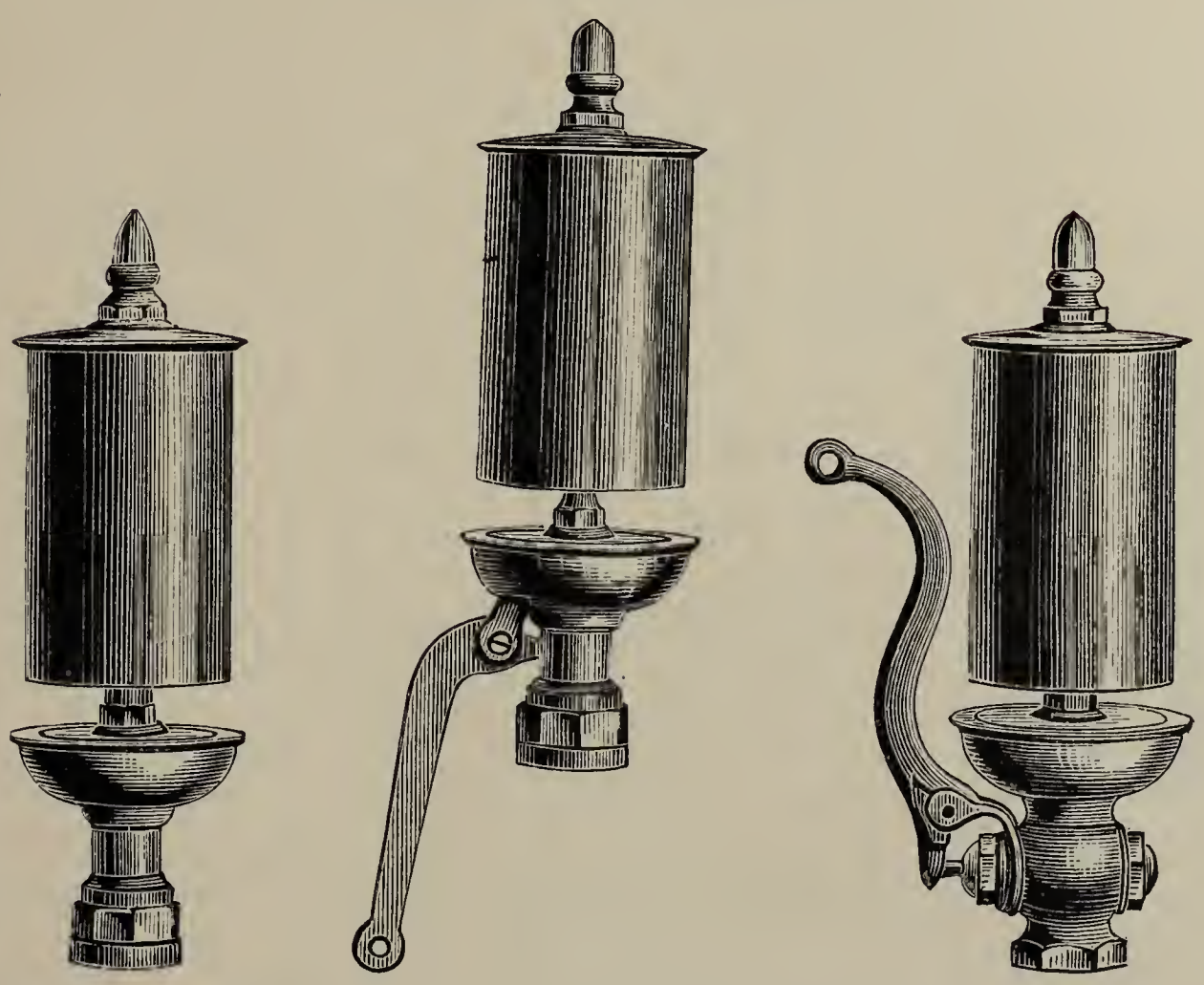
PORTABLE FORGES.



No. 1,	Blast equal to	24-inch	Bellows		$	40 00
" 2,	"	30 "	"			50 00
" 3,	"	36 "	"			70 00
" 4,	"	40 "	"			100 00
" 5,	"	50 "	"			150 00

ENGINE TRIMMINGS.

STEAM WHISTLES.



Diameter of Body, inches	1	1¼	1½	2	3	4	5	6
Size of Pipe, inches	⅜	½	½	¾	1	1¼	1½	2
Price without Valve, finished	2 50	3 00	4 25	5 00	8 50	13 50	20 00	29 00
" with " "			4 75	5 50	9 00	14 50	22 00	33 00
" " " painted					7 50	11 50	18 00	28 00
" without " "					7 00	10 50	17 00	26 00
Price, with Spring Valve, finished				6 25	10 00	16 00	24 00	35 00

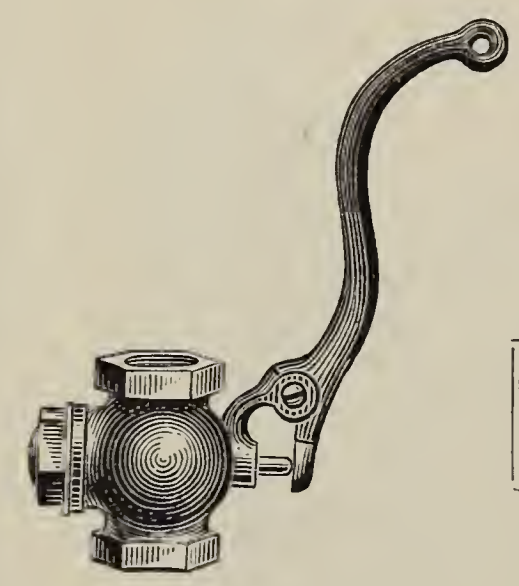
NOTE.—That ½-*inch* Pipe is the *proper size* for 2-*inch* Whistles, and 1½-*inch* Pipe for 4-*inch* Whistles *with Spring Valves.*

The other sizes take same Pipe as ordinary Whistles, as shown in Table.

For 10-inch Cast Iron Whistle, see page 50.

STEAM WHISTLES—CAST IRON.

Diameter of Body	10 inches.
Size of Pipe	3 inches.
Price with Valve, painted	$50 00
Price without Valve, painted	42 00



WHISTLE VALVES.

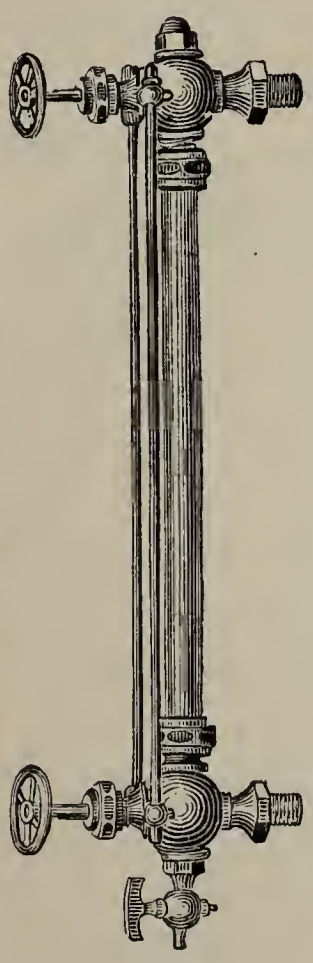
Size of Pipe	½	¾	1	1¼	1½	2	3
Price	2 80	3 30	4 25	5 50	8 00	12 00	13 00

SCOTCH GLASS TUBES.

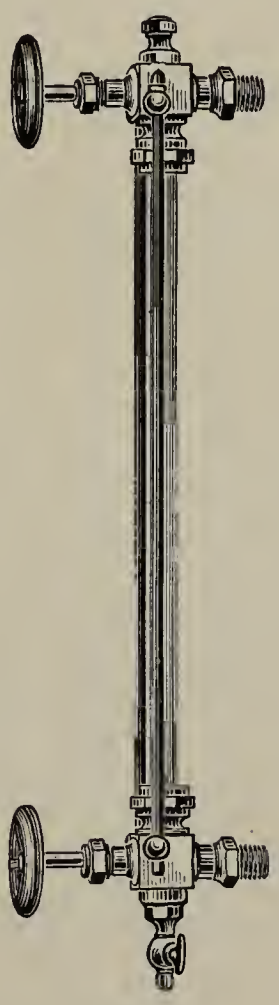
For Water Gauges.

Diam. Inches.	Price.	Diam. In.	Price.	Diam. In.	Price.
⅝x10	$0 50	¾x10	$0 70	¾x19	1 05
11	50	11	70	20	1 10
12	55	12	70	24	1 40
13	55	13	75	30	2 00
14	60	14	80	36	2 50
15	70	15	85	48	3 00
16	75	16	90		
17	80	17	95		
18	90	18	1 00		
19	95				
20	1 00				

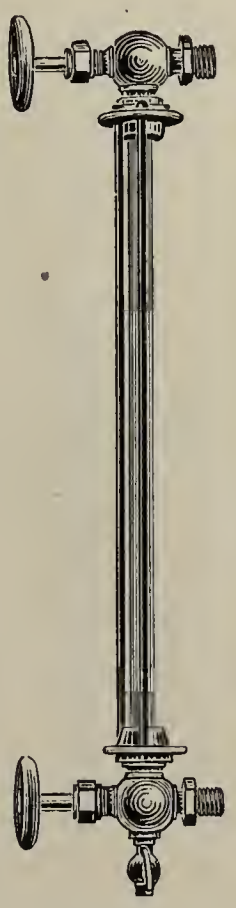
WATER GAUGES.



No. 1.



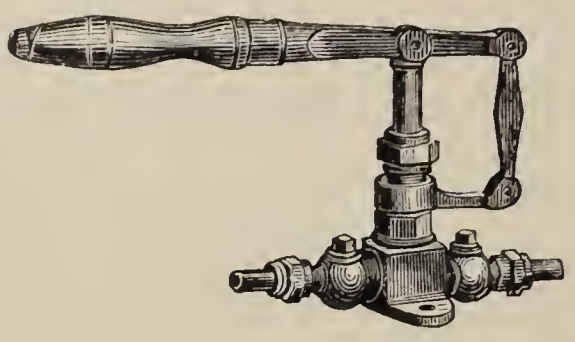
No. 2.



No. 3.

Size of Pipe		$\frac{1}{2}$	$\frac{3}{4}$
Size of Glass		$\frac{5}{8}$x14	$\frac{3}{4}$x16
No. 1, Round body, finished	Price	9 75	12 00
No. 2, Square body, finished	Price	8 50	
No. 3, Round body, rough	Price	5 00	
No. 4, Round body, (no cut) with cock, rough for tanks	Price		9 00
Rods and Glass extra, according to length required.			

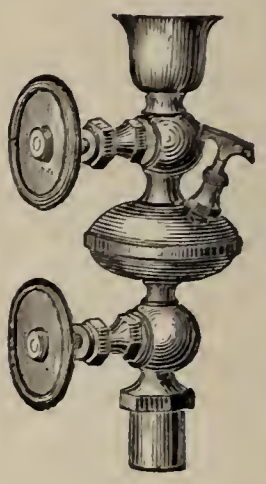
Rubber Washers for same, 20c. per dozen, net.



LEVER HANDLE OIL PUMPS.

Price $11 75

OIL GLOBES WITH VALVES.



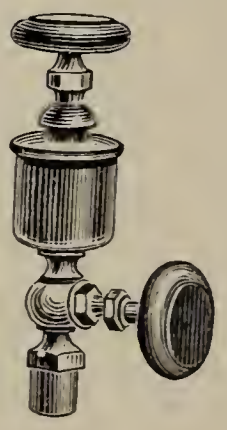
Diameter of Body, inches	2½	3½
Diameter of Shank	1	1⅛
Will chase (Iron Pipe size)	¾	¾
Price	5 75	7 90

OIL GLOBES WITH COCKS.

Diameter of Body, inches	2	2½	3½
Diameter of Shank	¾	⅞	1⅛
Will chase (Iron Pipe size)	½	½	¾
Price	3 60	4 90	6 75

LUBRICATORS.

Wood Handle.

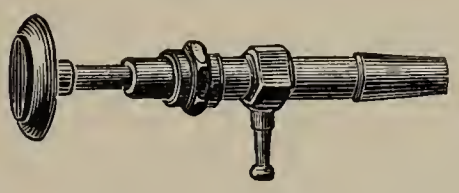


Diameter of Body, inches	1¼	1½	2	2½	3
Diameter of Shank	⅝	¾	1	1	1
Will chase (Iron Pipe size)	⅜	½	¾	¾	¾
Price, with Wood Handle	2 75	3 60	4 75	6 50	9 00

GAUGE COCKS.

Regester's Patent.

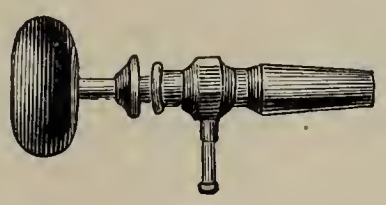
Diameter of Shank	¾	1
Will chase (Iron Pipe Size)	½	¾
Price	3 00	3 00



COMPRESSION GAUGE COCKS.

With Stuffing Box.

Diameter of Shank	$\frac{3}{4}$
Will chase (Iron Pipe Size)	$\frac{1}{2}$
Price, with Wood Handle	3 40
Price, with Iron Handle	3 00



COMPRESSION GAUGE COCKS,

With Wood Handle and Soft Metal Seats.

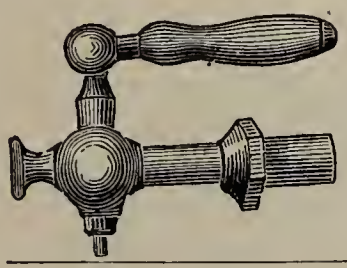
Diameter of Shank	$\frac{5}{8}$	$\frac{3}{4}$
Will chase (Iron Pipe Size)	$\frac{3}{8}$	$\frac{1}{2}$
Price	1 80	2 50

COMPRESSION GAUGE COCKS,

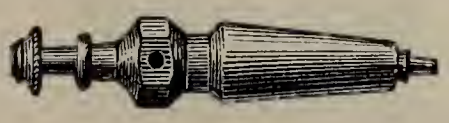
With Wood Handle and Wood Seat.

Diameter of Shank	$\frac{3}{4}$
Will chase (Iron Pipe Size)	$\frac{1}{2}$
Price	2 00

LEVER HANDLE GAUGE COCKS.



Diameter of Shank	$\frac{3}{4}$	1
Will chase (Iron Pipe Size)	$\frac{1}{2}$	$\frac{3}{4}$
Price, Wood Handle	3 00	3 75

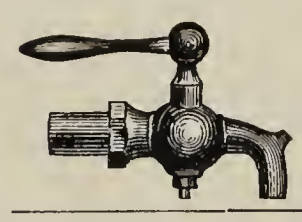


MISSISSIPPI GAUGE COCKS.

Diameter of Shank	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Will chase (Iron Pipe Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$
Price	95	1 10	1 50	2 40

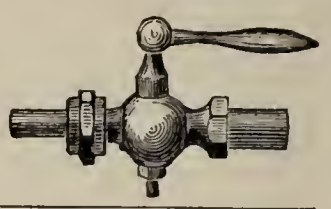
PLAIN OIL CUPS.

Diameter of Body	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Diameter of Shank	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	1	$1\frac{1}{8}$
Will chase (Iron Pipe size)	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$
Price	50	50	60	75	90	1 70	2 40	4 10

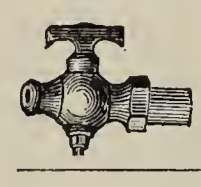


CYLINDER COCKS

With Bibb or Coupling.



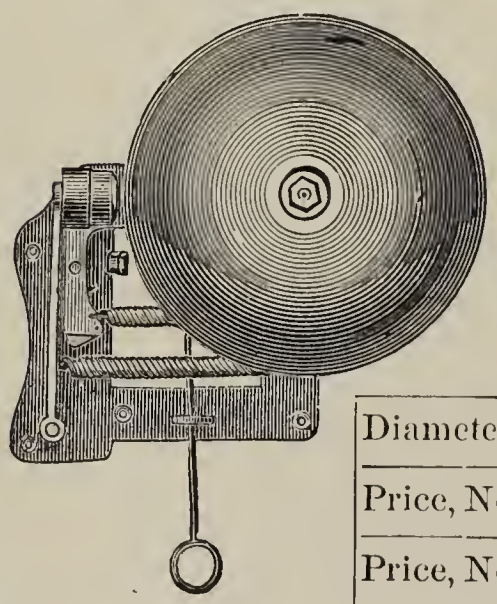
Diameter of Shank	$\frac{5}{8}$	$\frac{3}{4}$	1
Will chase (Iron Pipe size)	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Price, with Bibb, Rough	95	1 65	2 12
Price, with Bibb or Couplings, Finished	1 85	2 60	3 30



AIR COCKS

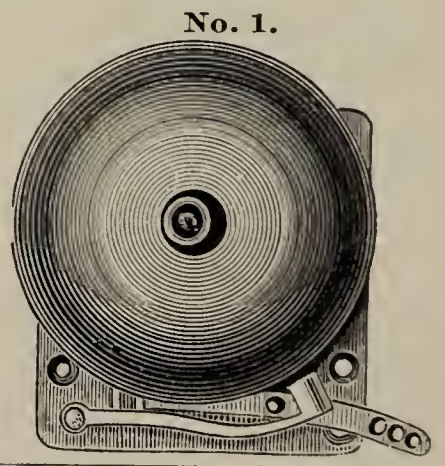
Diameter of Shank	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Will chase (Iron Pipe size)	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Price, Rough	50	72	95	1 75
Price, Finished	85	1 05	1 50	2 15

No. 2.



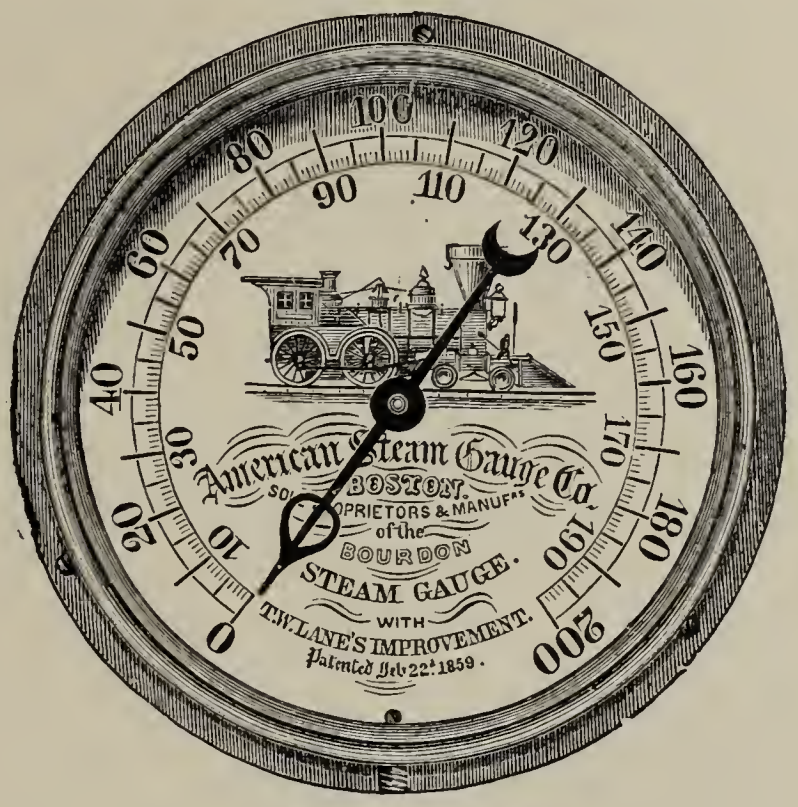
GONG BELLS.

No. 1.



Diameter ..... In.	4	6	7	8	10	12	13
Price, No. 1	3 40	4 60	6 00	7 00	9 75	16 25	18 00
Price, No. 2					10 50	17 00	19 00

STEAM GAUGES.



AMERICAN.

No. 2, Brass Case, $6\frac{3}{4}$ inch Dial, Lane's Improvement	$22 00
" 5, " " $5\frac{1}{2}$ " " " "	13 00
" 6, Iron " $5\frac{1}{2}$ " " " "	11 00

CROSBY PATENT.

No. 2, Brass Case, $6\frac{3}{4}$ inch Dial	$22 00
" 5, " " $5\frac{1}{2}$ " "	13 00
" " " $4\frac{1}{4}$ " "	11 00
" 6, Iron " $5\frac{1}{2}$ " "	11 00

ASHCROFT PATENT.

Iron Case, 5 inch Dial	$ 8 00
Plain " " 5 " " Low Pressure	8 00
" " 5 " " " " Nickel Plated Rim	10 00

Above prices include Steam Gauge Cocks.

CHICAGO STEAM GAUGES.

No. 1, Brass Case, 5 inch Dial	$15 00
" 2, " " 6 " "	20 00
" 1, Iron " 5 " "	12 00
" 2, " " 6 " "	14 00
Steam Gauge Cock, with Union	1 50
" " " without Union	1 00
" " Syphon	1 00

MACHINE BELTING.

Made of *Heavy Cotton Duck*, coated with the best India Rubber; is unaffected by *Heat*, *Cold*, or *Moisture*, and is preferred to Leather or any other material, for *Elevators*, *Gin Bands*, *Agricultural Machines*, *Flouring Mills*, *etc.*, *etc.*

3-PLY.		4-PLY.	
2 inch, per foot	17 cents.	2 inch, per foot	21 cents.
3 " " "	26 "	3 " " "	31 "
4 " " "	34 "	4 " " "	42 "
5 " " "	43 "	5 " " "	52 "
6 " " "	52 "	6 " " "	62 "
7 " " "	60 "	7 " " "	73 "
8 " " "	70 "	8 " " "	84 "
9 " " "	80 "	9 " " "	95 "
10 " " "	90 "	10 " " "	107 "
11 " " "	100 "	11 " " "	118 "
12 " " "	108 "	12 " " "	130 "
13 " " "	118 "	13 " " "	142 "
14 " " "	128 "	14 " " "	154 "
15 " " "	138 "	15 " " "	166 "
16 " " "	150 "	16 " " "	178 "
18 " " "	170 "	18 " " "	202 "
20 " " "	190 "	20 " " "	226 "
22 " " "	212 "	22 " " "	252 "
24 " " "	236 "	24 " " "	280 "

Intermediate widths at proportionate prices.

Heavy 5 and 6-ply Belts made to order, for purposes where great strength is required, as a substitute for double leather, at an advance of twenty-five and fifty per cent. on 4-ply prices.

2-PLY MACHINE BELTING.

For Agricultural Machines, Railway Belts and other light work.

1 inch, per foot	7 cents.	$2\frac{1}{2}$ inch, per foot	17 cents.
$1\frac{1}{4}$ " " "	$8\frac{1}{2}$ "	3 " " "	20 "
$1\frac{1}{2}$ " " "	10 "	$3\frac{1}{2}$ " " "	24 "
2 " " "	14 "	4 " " "	28 "

Special orders for Belts of any thickness and width can be executed within one week from the receipt of the order; but keep no Belts on hand heavier than "four-ply," or more than 20 inches in width. Have constantly on hand a very large stock, and can usually fill orders on the same day they are received.

Endless Belts of any width or length made to order,

A full Roll of Belting Measures from 250 to 300 feet.

PRICE LIST OF PURE OAK TANNED BELTING.

Per Running Foot.

1	inch	$ 09	15	inch	$1 80
1½	"	15	16	"	1 94
2	"	21	17	"	2 10
2½	"	27	18	"	2 26
3	"	33	19	"	2 42
3½	"	39	20	"	2 58
4	"	45	21	"	2 74
4½	"	51	22	"	2 90
5	"	57	24	"	3 22
5½	"	63	26	"	3 56
6	"	69	28	"	3 90
7	"	81	30	"	4 22
8	"	93	32	"	4 54
9	"	1 05	34	"	4 86
10	"	1 17	36	"	5 18
11	"	1 29	40	"	5 82
12	"	1 41	44	"	6 46
13	"	1 53	48	"	7 10
14	"	1 65			

Solid.			Twist.		
⅛	inch	5 cents.	⅛	inch	5 cents.
3/16	"	7 "	3/16	"	9 "
¼	"	10 "	¼	"	12 "
5/16	"	14 "	5/16	"	16 "
⅜	"	18 "	⅜	"	20 "
			½	"	25 "
			⅝	"	30 "
			¾	"	38 "
			⅞	"	45 "
			1	"	53 "

Double Bands twice the price of single.

PAGE'S PATENT MACHINE CUT BELT LACING.

LENGTH.	WIDTH OF STRINGS.	PRICE PER 100 FEET.	LENGTH.	WIDTH OF STRINGS.	PRICE PER 100 FEET.
Assorted	5/16	$1 15	Assorted	½	$2 00
"	⅜	1 25	"	⅝	2 75

Lace Leather, according to quality, per side.....$2 50 to $8 00

VULCANIZED RUBBER STEAM PACKING.

This article is now considered by Engineers and Machinists as indispensable wherever steam joints are to be made, as no substance has so much elasticity which stands so high a degree of heat. The Packing is made to be used in, and is warranted to stand, at least 300 degrees Fahrenheit.

PRICES OF STEAM PACKING.

*MIXED OR FIBROUS PACKING, in sheets of all thicknesses, from $\frac{3}{32}$ of an inch upward, per lb.	$ 50
Thinner sizes of same — say $\frac{1}{16}$ of an inch and less, per lb.	60
*GUM PACKING, with Cloth Insertion, in sheets of all thicknesses, from $\frac{3}{32}$ of an inch upward, per lb.	55
Thinner sizes of same — say $\frac{1}{16}$ of an inch and less, per lb.	65
GASKETS OR FIBROUS PACKING for Man-hole Plates, Steam Chests, Cylinder Heads, etc., per lb.	80
GASKETS, WASHERS, RINGS, etc., *with Cloth Insertion*, per lb. 80 cts. to	1 00
GASKETS, WASHERS, RINGS, etc., of *Pure* Vulcanized Rubber, per lb.	$1 00 to 1 50
*PURE VULCANIZED SHEET RUBBER, of all thicknesses and lengths, for Valves, Discs, Gaskets, Washers, Rings, etc., where great elasticity is required, per lb.	1 00
EXTRA PURE VULCANIZED RUBBER VALVES, for Hot and Cold Water Pumps, Vacuum Pumps, Foot and Delivery Valves, etc., per lb	$1 00 to 1 50
ROUND PACKING, with Duck outside, for Stuffing Boxes, Piston Rods, etc., from $\frac{1}{4}$ of an inch to 2 inches diameter, per lb.	80
SQUARE PISTON AND VALVE-ROD PACKING, of all sizes, cut to the most exact dimensions, very convenient, no trouble experienced in packing with it, and more durable than any other Packing ever used, per lb.	80

Special orders for Gaskets, Valves, etc., of any size or pattern that we do not keep on hand can be executed in one week from receipt of order.

For cutting rubber, use a sharp knife and keep it wet.

Italian Hemp Packing, per lb.	30 cents.
Soapstone Self-Lubricating Packing	25 "

*About one yard wide, and in rolls of any length required.

Manufacturers' Standard List of Machine Bolts,

With Square Heads and Nuts, Finished Points.

Price per 100.

Dimensions	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
1½ inches	2 70	3 05	3 50	4 05	4 80	5 65	6 55	10 00	14 15	19 40
2 "	2 80	3 20	3 70	4 30	5 10	6 00	7 00	10 60	15 00	20 50
2½ "	2 90	3 35	3 90	4 55	5 40	6 35	7 45	11 20	15 85	21 60
3 "	3 00	3 50	4 10	4 80	5 70	6 70	7 90	11 80	16 70	22 70
3½ "	3 10	3 65	4 30	5 05	6 00	7 05	8 35	12 40	17 55	23 80
4 "	3 20	3 80	4 50	5 30	6 30	7 40	8 80	13 00	18 40	24 90
4½ "	3 30	3 95	4 70	5 55	6 60	7 75	9 25	13 60	19 25	26 00
5 "	3 40	4 10	4 90	5 80	6 90	8 10	9 70	14 20	20 10	27 10
5½ "	3 50	4 25	5 10	6 05	7 20	8 45	10 15	14 80	20 95	28 20
6 "	3 60	4 40	5 30	6 30	7 50	8 80	10 60	15 40	21 80	29 30
6½ "	3 70	4 55	5 50	6 55	7 80	9 15	11 05	16 00	22 65	30 40
7 "	3 80	4 70	5 70	6 80	8 10	9 50	11 50	16 60	23 50	31 50
7½ "	3 90	4 85	5 90	7 05	8 40	9 85	11 95	17 20	24 35	32 60
8 "	4 00	5 00	6 10	7 30	8 70	10 20	12 40	17 80	25 20	33 70

Price per Pound.

Dimensions	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
8¼ to 10 inches	18	16	14	13	12	11	10¾	10½
10¼ to 12 "	17	15	13½	12½	11½	10¾	10½	10¼
Over 12 "	16	14	13	12	11	10½	10¼	10

Bolts with Hexagon Heads or Hexagon Nuts, 10 per cent. extra.

If both Hexagon Heads and Hexagon Nuts, 20 per cent. extra.

Bolts of irregular shape or style, made to order, will be charged extra at our discretion.

Manufacturers' Standard List of Washers.

Diameter.	Size of Hole.	Thickness Wire Gauge.	Size of Bolt.	Price per lb.
$\frac{1}{2}$	$\frac{1}{4}$	No. 18	$\frac{3}{16}$	28
$\frac{5}{8}$	$\frac{5}{16}$	No. 16	$\frac{1}{4}$	24
$\frac{3}{4}$	$\frac{5}{16}$	No. 16	$\frac{1}{4}$	21
$\frac{7}{8}$	$\frac{3}{8}$	No. 16	$\frac{5}{16}$	18
1	$\frac{7}{16}$	No. 14	$\frac{3}{8}$	16
$1\frac{1}{4}$	$\frac{1}{2}$	No. 14	$\frac{7}{16}$	13
$1\frac{3}{8}$	$\frac{9}{16}$	No. 12	$\frac{1}{2}$	13
$1\frac{1}{2}$	$\frac{5}{8}$	No. 12	$\frac{9}{16}$	13
$1\frac{3}{4}$	$\frac{11}{16}$	No. 10	$\frac{5}{8}$	$12\frac{1}{2}$
2	$\frac{13}{16}$	No. 10	$\frac{3}{4}$	$12\frac{1}{2}$
$2\frac{1}{4}$	$\frac{15}{16}$	No. 9	$\frac{7}{8}$	12
$2\frac{1}{2}$	$1\frac{1}{16}$	No. 9	1	12
$2\frac{3}{4}$	$1\frac{1}{4}$	No. 9	$1\frac{1}{8}$	12
3	$1\frac{3}{8}$	No. 9	$1\frac{1}{4}$	12
$3\frac{1}{2}$	$1\frac{1}{2}$	No. 9	$1\frac{3}{8}$	12

Washers of irregular sizes, made to order, will be charged extra at our discretion.

Cast Iron Washers,----------per lb. Cents.

Manufacturers' Standard List

OF

WOOD OR LAG SCREWS.

WITH SQUARE HEADS.

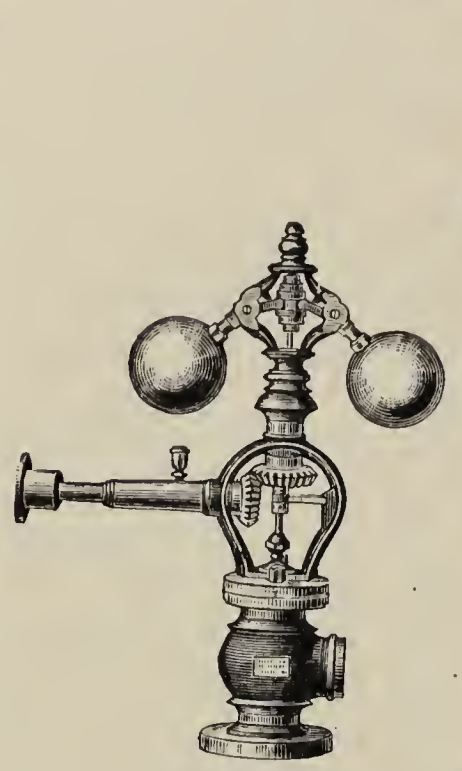
Price per Hundred.

Dimensions..	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
1½	2 30	2 70	3 10	3 50	4 10	4 80				
2	2 40	2 80	3 25	3 70	4 35	5 10	6 00			
2½	2 50	2 90	3 40	3 90	4 60	5 40	6 40	9 50		
3	2 60	3 00	3 55	4 10	4 85	5 70	6 80	10 00	14 25	
3½	2 70	3 10	3 70	4 30	5 10	6 00	7 20	10 50	15 00	20 30
4	2 80	3 20	3 85	4 50	5 35	6 30	7 60	11 00	15 75	21 25
4½	2 90	3 30	4 00	4 70	5 60	6 60	8 00	11 50	16 50	22 20
5	3 00	3 40	4 15	4 90	5 85	6 90	8 40	12 00	17 25	23 15
5½	3 10	3 50	4 30	5 10	6 10	7 20	8 80	12 50	18 00	24 10
6	3 20	3 60	4 45	5 30	6 35	7 50	9 20	13 00	18 75	25 05

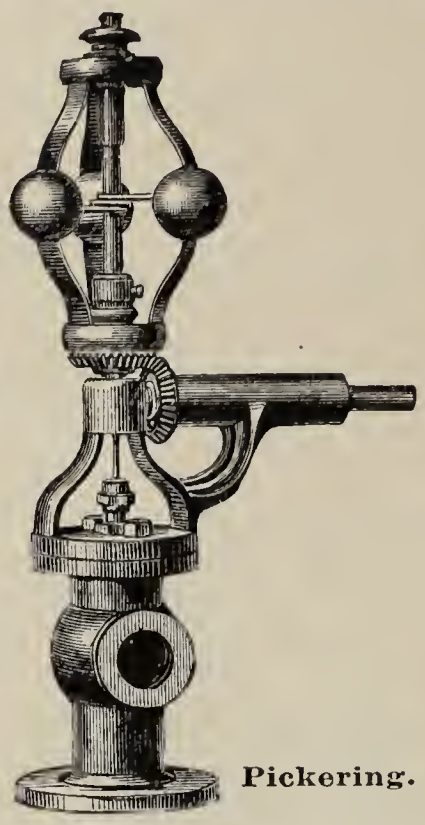
Price per Pound.

3/8 by 6¼ inches and longer....22c.	5/8 by 6¼ inches and longer....16c.
7/16 " 6¼ " " " ....20c.	3/4 " 6¼ " " " ....15c.
1/2 " 6¼ " " " ....18c.	7/8 " 6¼ " " " ....14c.
9/16 " 6¼ " " " ....17c.	1 " 6¼ " " " ....14c.

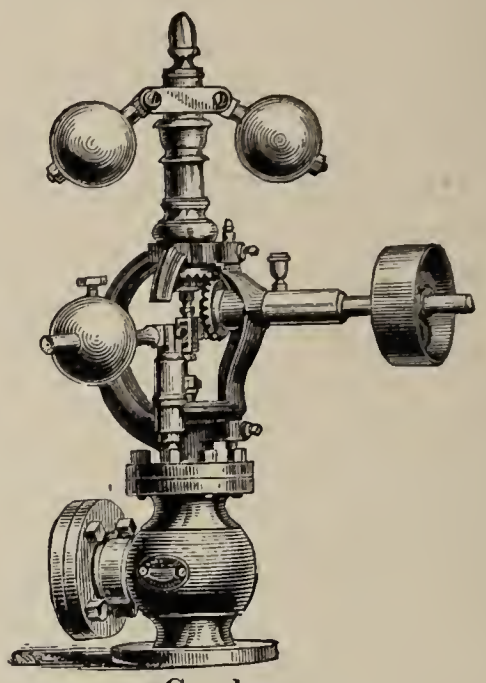
GOVERNORS.



Judson.



Pickering.



Gardner.

CAPACITY OF VALVE, OR DIAMETER OF STEAM PIPE.	JUDSON'S IMPROVED.		PICKERING.		GARDNER.	
	Price Plain.	Price Finished.	Price Plain.	Price Finished.	Price Plain.	Price Finished.
½ inch	$16 00	$18 00	$16 00	$18 00	$	$
¾ "	18 00	20 00	18 00	19 00		
1 "	20 00	22 00	20 00	22 00		
1¼ "	23 00	26 00	22 00	25 00		
1½ "	26 00	30 00	26 00	29 00	26 00	30 00
2 "	31 00	35 00	30 00	33 00	30 00	35 00
2¼ "	36 00	41 00			35 00	40 00
2½ "	40 00	45 00	41 00	45 00	40 00	45 00
3 "	50 00	57 00	50 00	57 00	50 00	57 00
3½ "	59 00	67 00	58 00	66 00	60 00	67 00
4 "	69 00	78 00	69 00	78 00	70 00	80 00
4½ "	80 00	90 00			80 00	90 00
5 "	90 00	101 00	88 00	100 00	90 00	105 00

MALLEABLE LATHE DOGS.

Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
No.	1	2	3	4	5	6	7	8	9	10	11	12
Price	35	40	50	60	75	90	1 00	1 10	1 35	1 50	1 70	1 90

FELTING.

No. 1, Hair ..... $\frac{1}{2}$ inch thick ..... 9 cents per square foot.
" 2, " ..... $\frac{3}{4}$ " " ..... 11 " " " "
" 3, " ..... 1 " " ..... 13 " " " "
" 4, Wool Back .... $\frac{3}{4}$ " " ..... 25 " " " "

VEGETABLE STEAMERS.

Price $40 00

This price includes one large or two small Dishes.

TRUCK WHEELS—SWIVEL OR STATIONARY.

For Packing Houses, Etc.

Diameter of Wheel, 3 inches; Price per set (of four) $6 00
" " 6 " " " " 8 00

Other sizes made to order.

CASTORS.

For Small Trucks or Baskets.

Diameter, 3 inches; Price per set $3 00

Engine, Hydrant, and Conducting Hose.

The 2-ply Hose, or Conducting Hose, is not calculated to stand much pressure. The 3-ply Hose (used for Hydrants, etc.,) is made to stand a pressure of 75 lbs. to the square inch. The 4-ply Hose (used for Locomotives and for Leading Hose for Fire Engines, and other purposes,) is made to withstand a pressure of 250 lbs. to the square inch. Hose made specially to order for Steam Fire Engines and Steam Pumps, where unusual strength is required.

CONDUCTING HOSE, 2-PLY

Internal Diam.			Internal Diam.		
½	inch per foot	17 cents.	2¾	inch per foot	92 cents.
¾	" "	25 "	3	" "	100 "
⅞	" "	29 "	4	" "	133 "
1	" "	33 "	5	" "	166 "
1¼	" "	42 "	6	" "	200 "
1½	" "	50 "	7	" "	233 "
1¾	" "	58 "	8	" "	266 "
2	" "	66 "	9	" "	300 "
2¼	" "	75 "	10	" "	333 "
2½	" "	83 "			

HYDRANT HOSE, 3-PLY.

Internal Diam.			Internal Diam.		
½	inch per foot	20 cents.	1¾	inch per foot	70 cents.
¾	" "	30 "	2	" "	80 "
⅞	" "	35 "	2¼	" "	90 "
1	" "	40 "	2½	" "	100 "
1¼	" "	50 "	2¾	" "	110 "
1½	" "	60 "	3	" "	120 "

ENGINE HOSE, 4-PLY.

Internal Diam.			Internal Diam.		
½	inch per foot	25 cents.	1¾	inch per foot	87 cents.
¾	" "	37 "	2	" "	100 "
⅞	" "	43 "	2¼	" "	112 "
1	" "	50 "	2½	" "	125 "
1¼	" "	62 "	2¾	" "	137 "
1½	" "	75 "	3	" "	150 "

5-ply Hose made to order at an advance of 25 per cent. on prices of 4-ply.

SUCTION HOSE

FOR

HAND AND STEAM FIRE ENGINES.

Made by a new and greatly improved process, and which, for service and efficiency, excels every other make.

MANUFACTURED ON COPPER RINGS.

3	inch	Internal	Diameter	$5 25	per foot.
3½	"	"	"	6 25	"
4	"	"	"	7 50	"
4½	"	"	"	8 75	"
5	"	"	"	10 25	"

MANUFACTURED ON GALVANIZED IRON RINGS, OR GALVANIZED SPIRAL BAND IRON.

2½	inch	Internal	Diameter	$3 10	per foot.
3	"	"	"	4 00	"
3½	"	"	"	4 90	"
4	"	"	"	5 80	"
4½	"	"	"	6 70	"
5	"	"	"	7 60	"

SMALL SIZES ON SPIRAL BRASS WIRE.

¾	inch	Internal	Diameter	$ 70	per foot.
1	"	"	"	90	"
1¼	"	"	"	1 15	"
1½	"	"	"	1 50	"
1¾	"	"	"	1 90	"
2	"	"	"	2 30	"

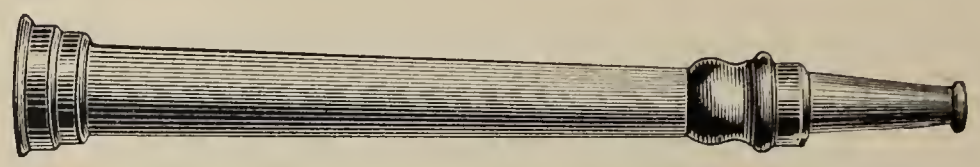
STEAM HOSE.

½	inch	Internal	Diameter,	4-ply	$ 38	per foot.
¾	"	"	"	"	55	"
⅞	"	"	"	"	65	"
1	"	"	"	"	75	"
1¼	"	"	"	"	93	"
1½	"	"	"	"	1 13	"
1¾	"	"	"	"	1 31	"
2	"	"	"	"	1 50	"

STEAM FIRE ENGINE HOSE.

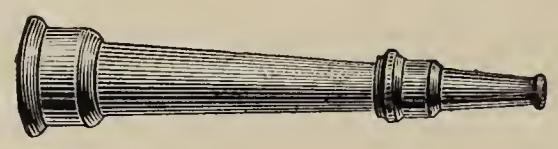
This Hose is made of the BEST Cotton Duck, made expressly for this purpose, and will stand a pressure of 250 lbs. to the square inch.

HOSE PIPES, COUPLINGS, ETC.



HOSE PIPES.

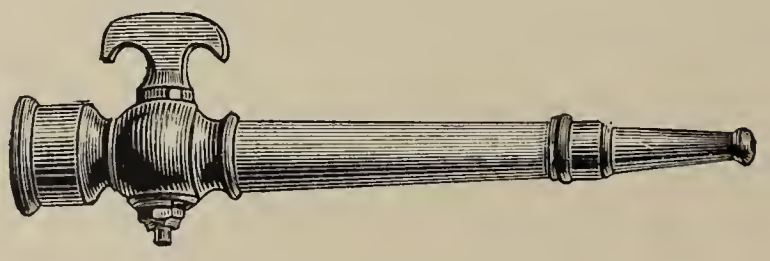
Screw Tip.



Size.....Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$
Length.....Inches	13	$14\frac{1}{2}$	17	$19\frac{1}{4}$	$20\frac{1}{2}$	24	30	36
Price, Long Pattern.....	2 20	2 80	3 50	5 00	7 50	11 00	12 50	14 00
Price, Short Pattern.....	1 00	1 30	1 75					

The Discharge Nozzle on the $2\frac{1}{2}$ inch either $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$ or $1\frac{1}{4}$ in diam.

HOSE PIPES WITH COCKS.



Size.....Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price, Long Pattern.....	3 00	4 00	5 50	7 00
Price, Medium Pattern.....	2 00	3 00		
Price, Short Pattern.....	1 50			

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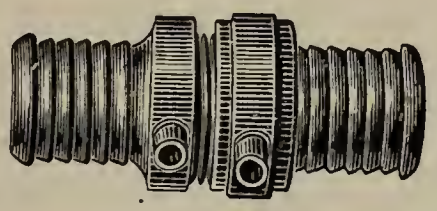


HOSE COUPLINGS.

Size ...Inches	½	¾	1	1¼	1½	2	2½	3
Price	40	40	65	1 25	2 00	3 00	4 00	6 00

HOSE COUPLINGS.

For Iron Pipe.

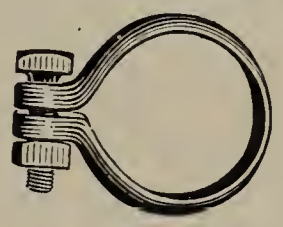
Size .....Inches	¾	1	1¼	1½	2	2½	3
Price	50	75	1 40	2 20	3 25	4 30	6 50

HALF HOSE COUPLINGS.

Female.

Size ...Inches	½	¾	1	1¼	1½	2	2½	3
Price	30	30	45	85	1 35	2 00	2 70	4 00

HOSE CLAMPS.



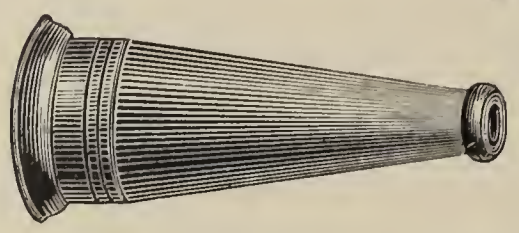
Size .....Inches	¾	1	1¼	1½	2	2½	3
Price per Pair.....	35	40	60	75	90	1 15	1 50

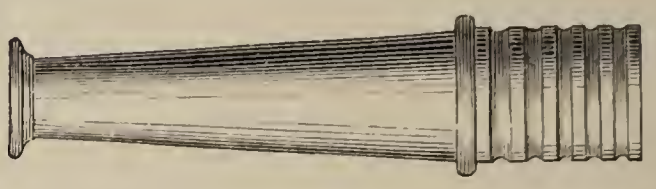
Made to suit the different ply Hose. In ordering, give ply Hose required for.

HOSE CAPS.

Size ..... Inches	¾	1	1¼	1½	2	2½
Price	35	45	75	1 00	1 50	2 00

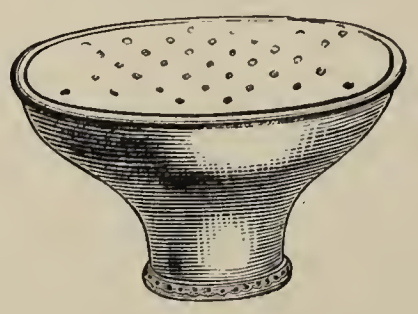
HOSE NOZZLES.





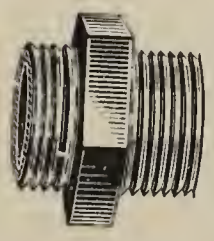
Size ..... Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price, to Screw	60	70	1 00	1 70	2 20	3 00
Price, to Wind	60	70	1 00			

HOSE PIPE SPRINKLERS.



Size ..... Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price	45	70	2 00	2 75	3 25

HOSE NIPPLES.



Size ..... Inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price	45	60	80	1 00	1 95	2 60	3 25

HOSE SPANNERS.

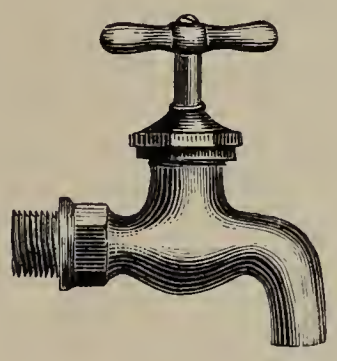
Malleable Iron.

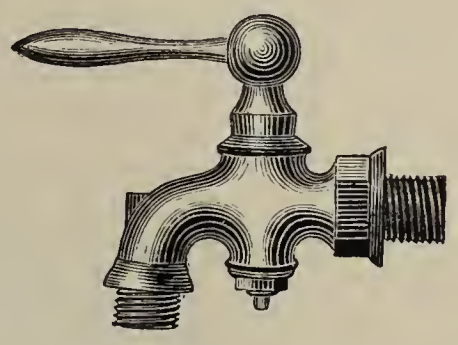
Size	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price each, net	15	20	25	30

WATER COCKS, BRASS.

BIBB COCKS.

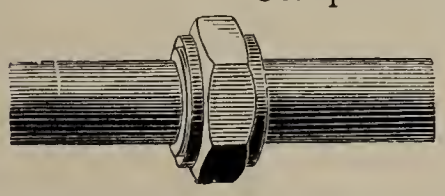
Lever Handle and Compression.





Size.....Inches	½	¾	1	1¼	1½	2
Bibb Cocks for Iron Pipe, rough	1 40	2 15	3 15	5 00	7 00	12 00
" " " " " finished	1 50	2 25	3 40	6 00	8 15	13 50
" " " " " and Hose, rough	1 65	2 40	3 50	5 75	8 00	13 50
" " " " " " " finished	1 75	2 50	3 75	6 75	9 15	15 00
Compression Bibbs for Iron Pipe, finished	1 30	1 75	3 40			
" " " " " rough	1 20	1 65	3 15			
" " " " " and Hose, finished	1 60	2 00	3 75			
" " " " " " " rough	1 45	1 90	3 50			

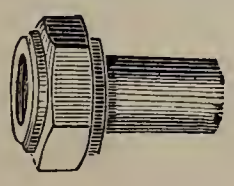
Compression Bibbs for Iron Pipe, finished, ⅜ in. $1.25.



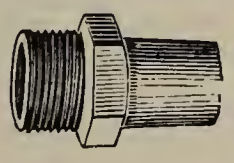
PLAIN COUPLINGS.

Size,.....Inches	⅜	½	¾	1	1¼	1½	2
Price	30	32	50	80	1 35	1 85	3 00

HALF SOLDERING UNION.



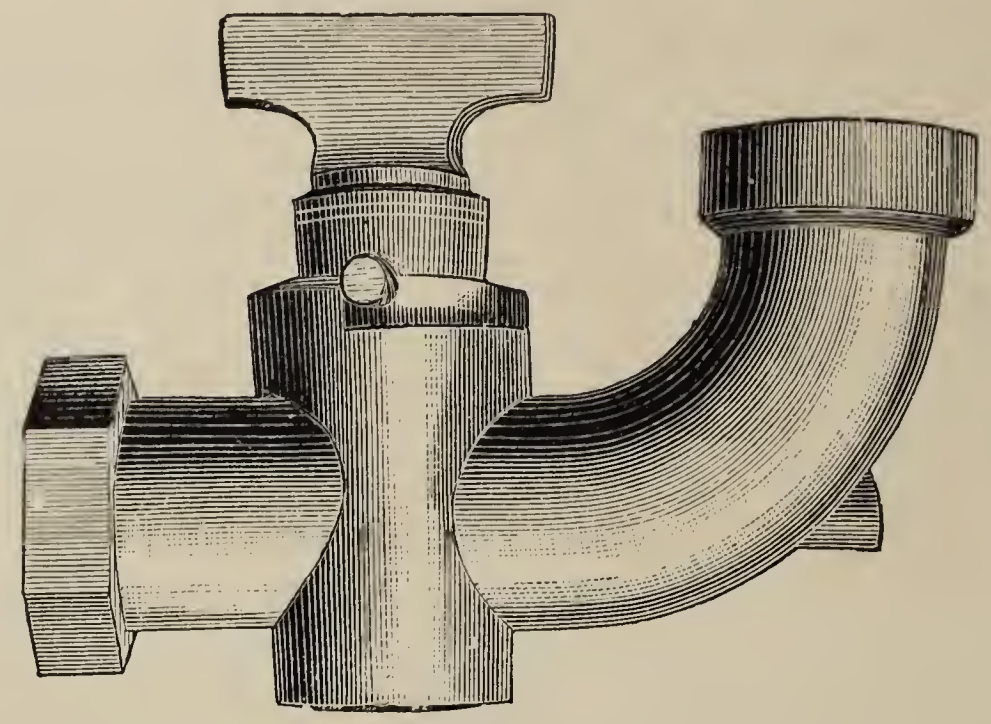
SOLDERING NIPPLE.



Size.....Inches	⅜	½	¾	1	1¼	1½	2
Price, Half Soldering Union	30	35	40	60	90	1 50	2 00
Price, Soldering Nipple	25	30	35	50	80	1 35	1 65

HYDRANT COCKS FOR IRON PIPE.

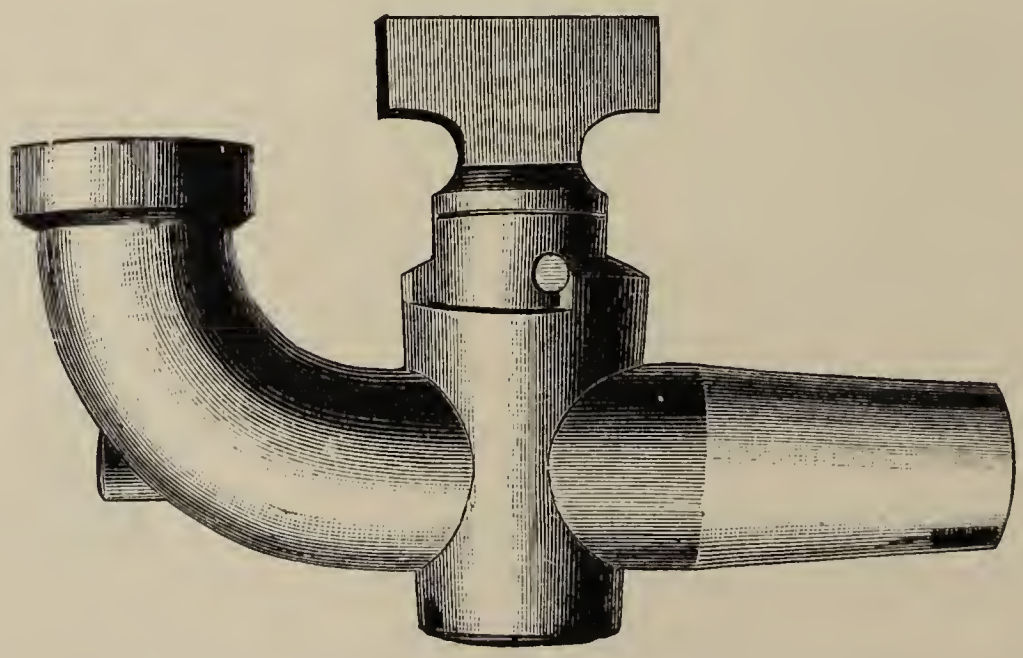
Check and Waste.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, with Rivet bottom	1 50	2 00	3 25
Price, with Nut and Washer	1 75	2 25	3 75

HYDRANT COCKS—FOR IRON AND LEAD PIPE.

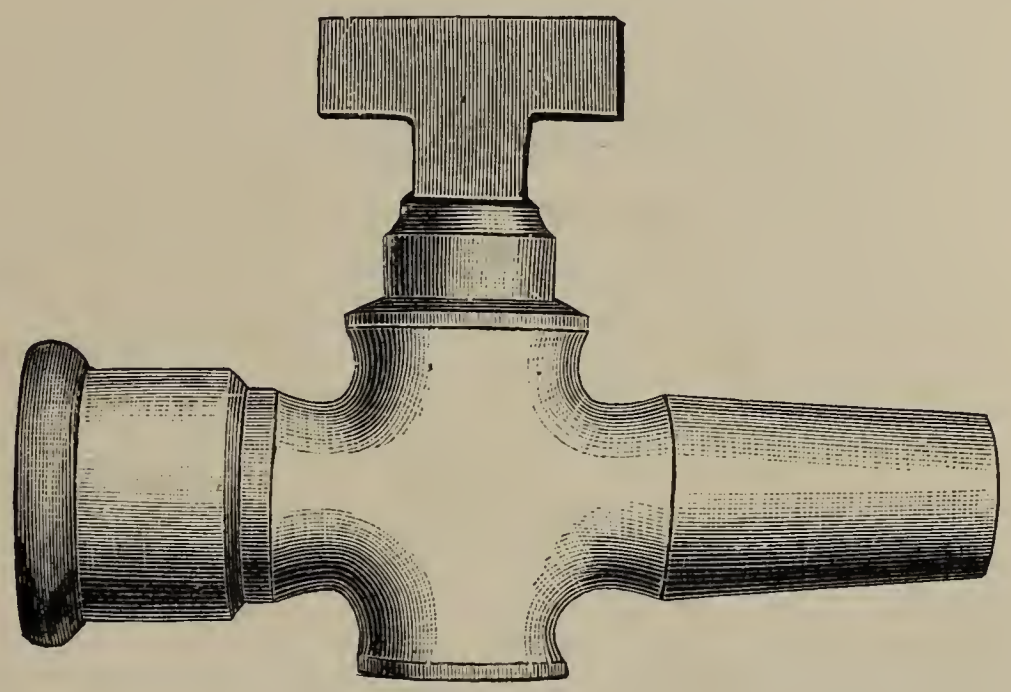
Check and Waste.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1
Price	1 50	1 92	3 33

STOP COCKS FOR LEAD AND IRON PIPE.

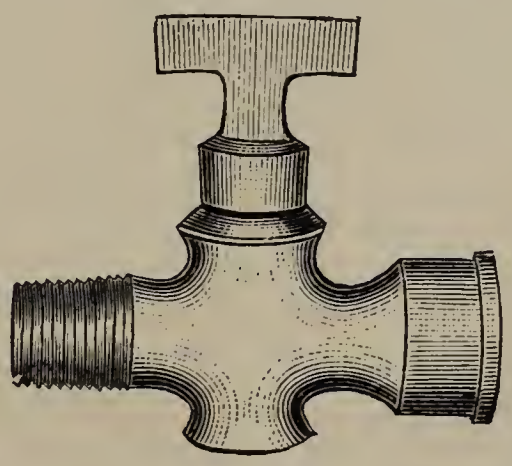
Tee Handle.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, plain	1 25	1 75	2 50
Price, Check and Waste at either end	1 40	1 90	2 75
Price, Lever Handle	1 40	1 95	2 75

STOP COCKS FOR IRON PIPE.

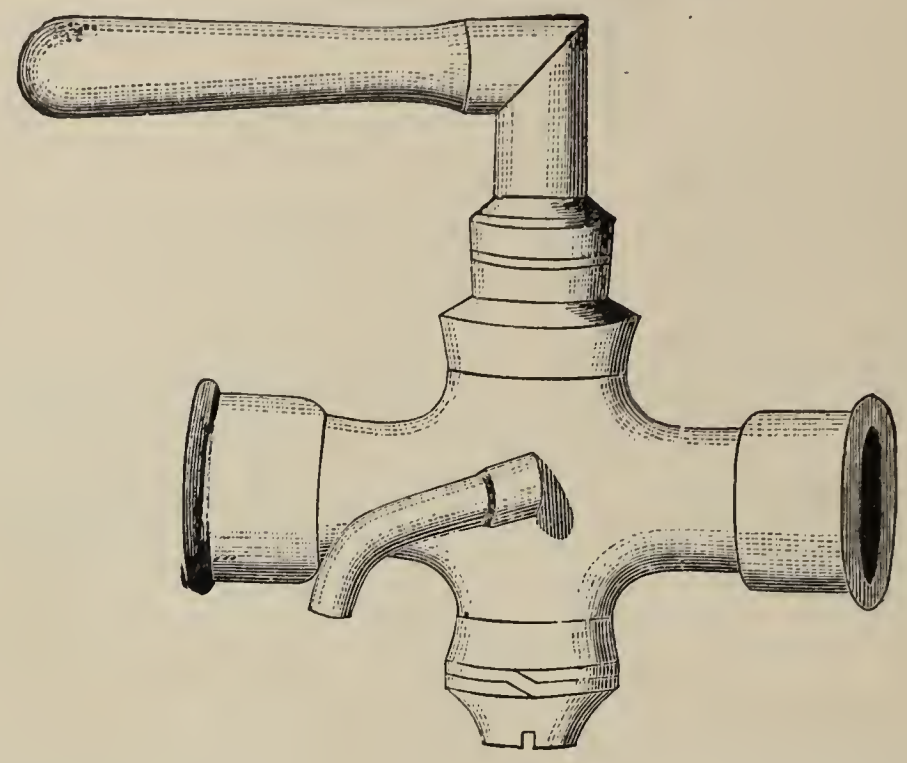
Tee Handle—M. and F. Threads.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Rivet Bottom	1 20	1 50	2 25	3 85
Price, Rivet Bottom, C. and W.	1 25	1 60	2 35	
Price, Nut and Washer	1 35	1 75	2 50	
Price, Nut and Washer C. and W.	1 45	1 90	2 75	

SHOWER BATH COCKS, FOR IRON PIPE.

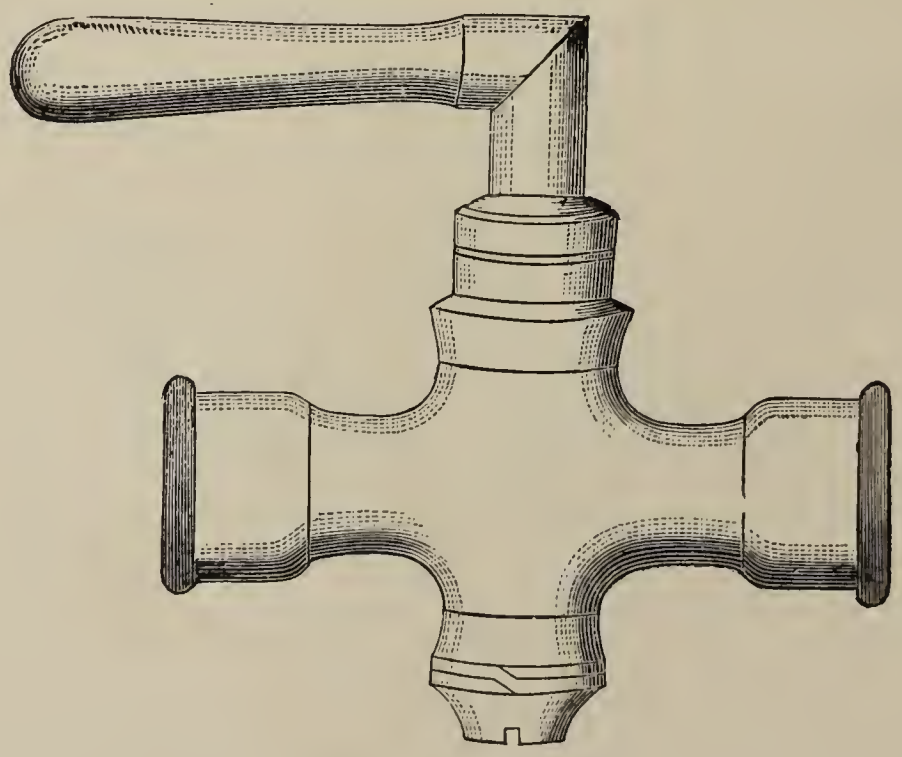
Lever Handle, Check and Waste.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Plain	1 45	1 85	2 60	4 25

STOP COCKS, FOR IRON PIPE.

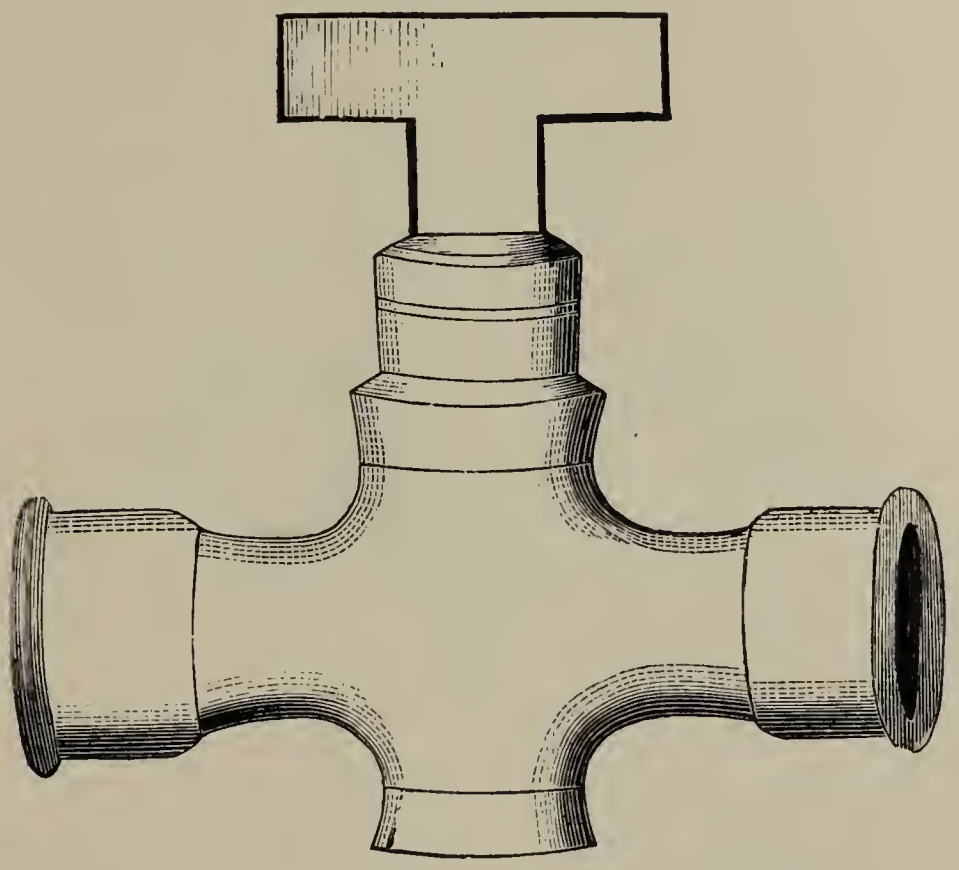
Lever Handle, Female Threads.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Price, Plain	1 35	1 75	2 50	4 17

STOP COCKS, FOR IRON PIPE.

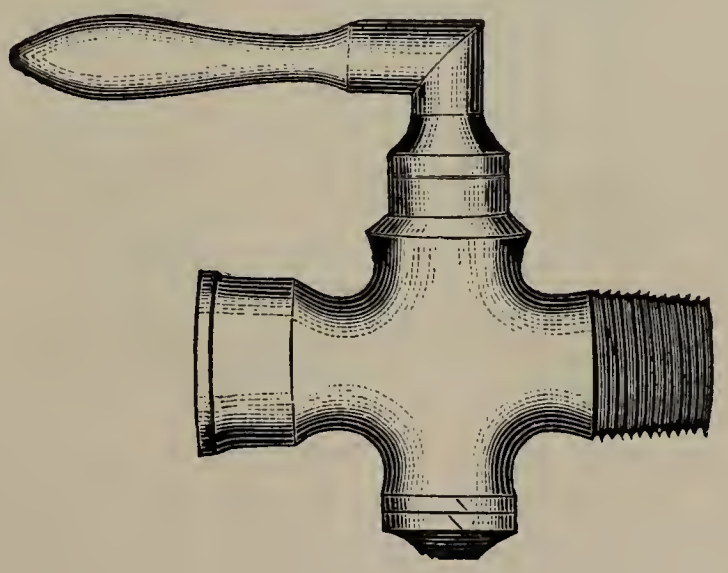
Tee Handle, Female Thread.



Size	½	¾	1	1¼
Price, Plain, Rivet Bottom	1 20	1 50	2 25	3 85
Price, Rivet Bottom, Check and Waste	1 25	1 60	2 35	4 20
Price, Plain, Nut and Washer	1 35	1 75	2 50	
Price, Nut and Washer, C. & W.	1 45	1 85	2 60	

STOP COCKS, FOR IRON PIPE.

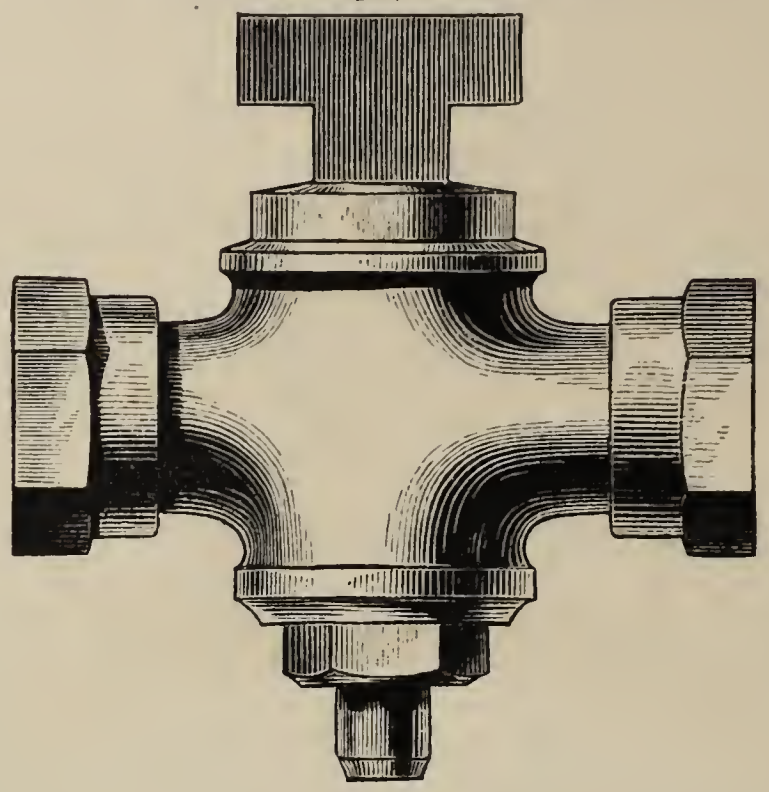
Lever Handle, M. and F. Threads.



Size	½	¾	1
Price, Plain	1 35	1 75	2 50

ROUND-WAY STOP COCKS,

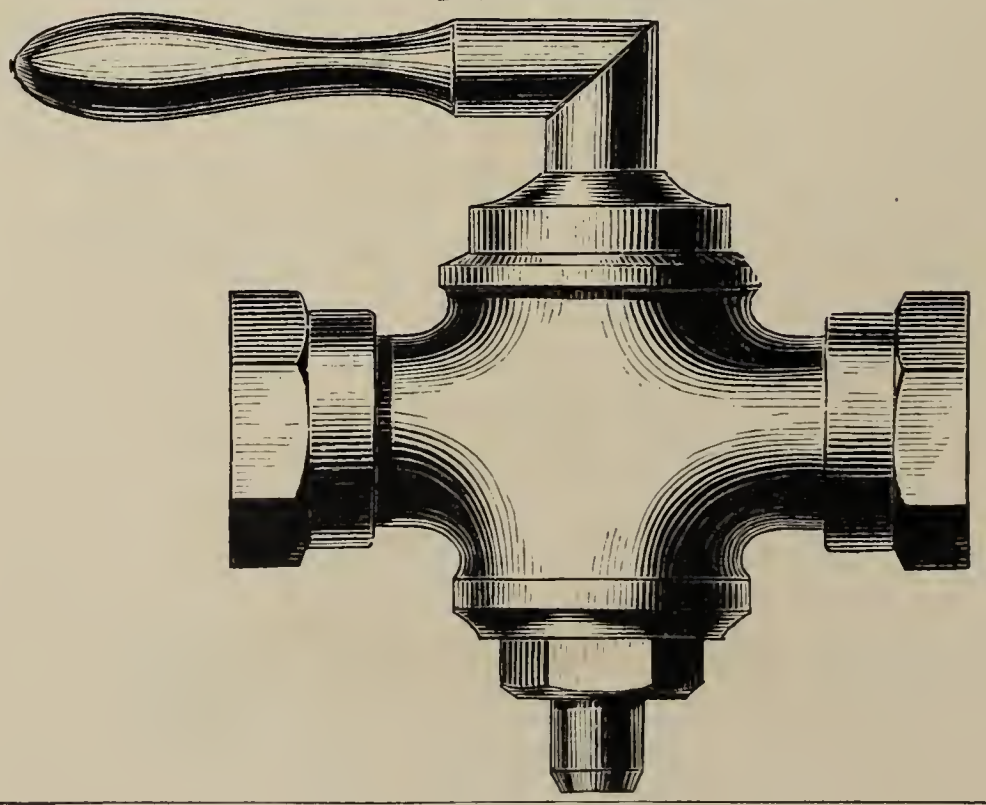
For Iron Pipe, Tee Handle.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, plain	1 75	2 25	3 50
Price, Check and Waste	1 95	2 50	3 85

ROUND-WAY STOP COCKS.

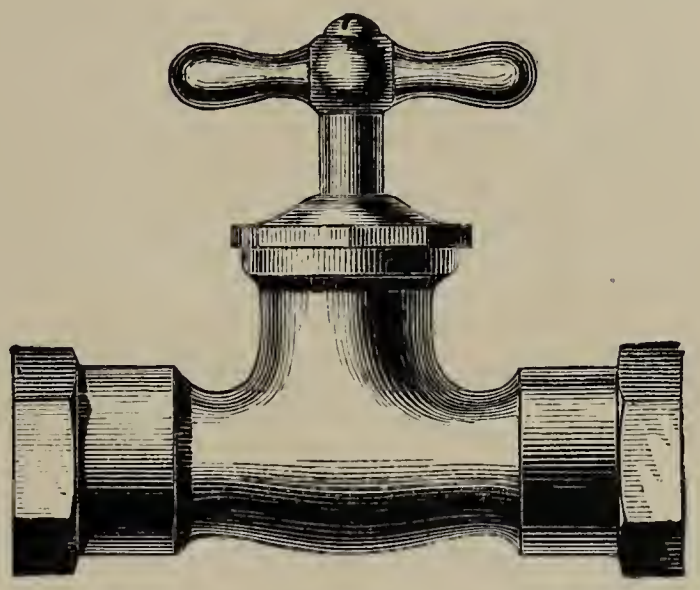
For Iron Pipe, Lever Handle.



Size	$\frac{1}{2}$	$\frac{3}{4}$	1
Price, plain	1 75	2 25	3 50
Price, Check and Waste	1 95	2 45	3 85

COMPRESSION STOP COCKS.

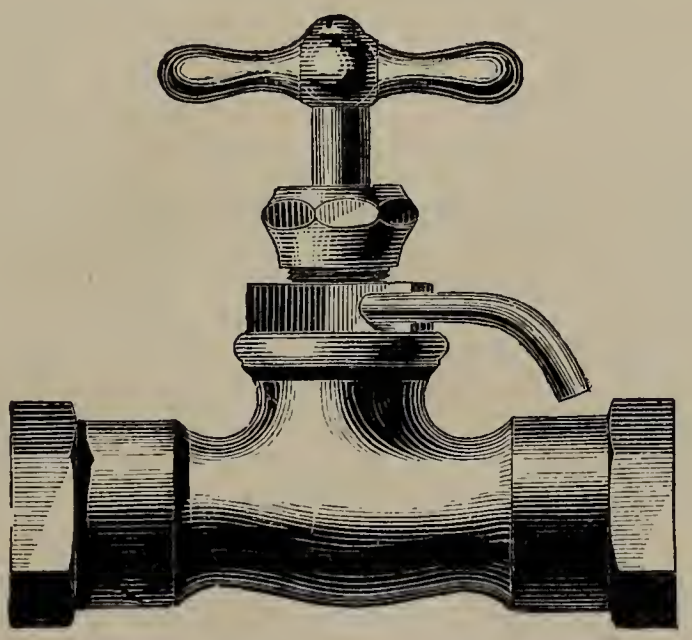
For Iron Pipe.



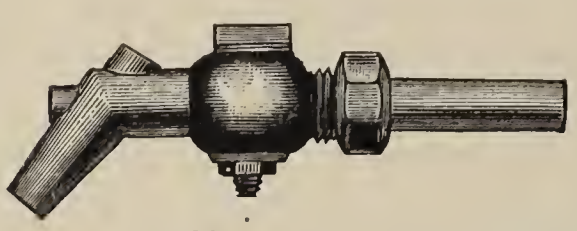
Size	½	¾	1
Price, Plain	1 50	2 10	3 50
Price, Finished	1 65	2 20	3 75

COMPRESSION STOP COCKS.

For Iron Pipe, Check and Waste.



Size	½	¾	1
Price, Plain	1 70	2 35	3 75
Price, Finished	1 95	2 50	4 25



No. 1.

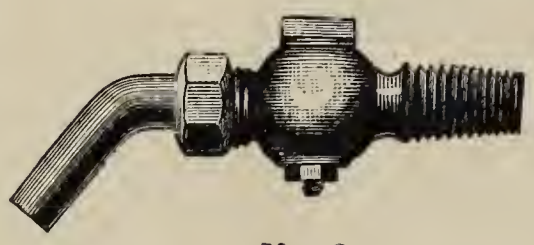
CORPORATION STOP COCKS.

Heavy. to Drive into Main.

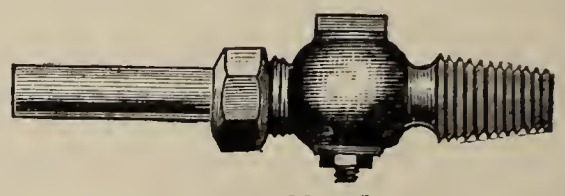
Size of Opening	½	⅝	¾	1
Price	1 20	1 50	2 00	3 50

CORPORATION STOP COCKS.

Iron Pipe Thread, to Screw into Main.



No. 2.



No. 3.

Size of Opening	⅜	½	⅝	¾
Price	1 00	1 30	1 60	2 10

NOTE.— Nos. 2 and 3 are generally used in connection with Mueller's Patent Tapping Machine.

No. 4.

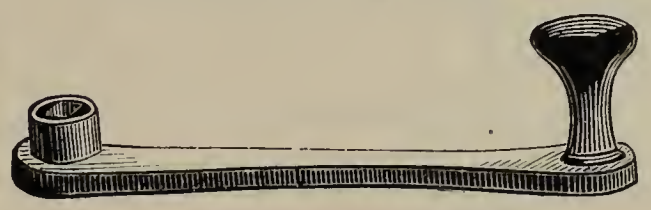
CORPORATION STOP COCKS.

Iron Pipe Thread, to Screw into Main.

Size of Opening	⅜	½	⅝	¾
Iron Pipe	½	½	¾	1
Price	90	1 20	1 50	1 90

IRON STOP BOX COVERS.	IRON TAP COVERS.
Price Each.....40c.	Price Each.....35c.

HYDRANT HANDLES.



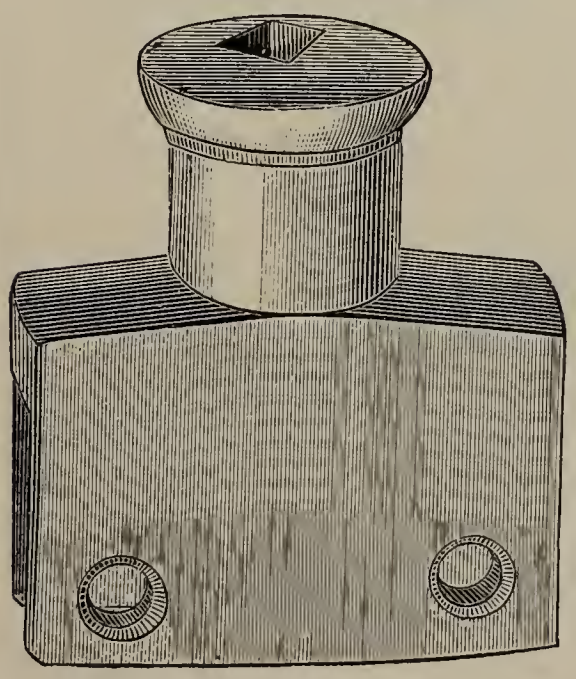
No. 1, Brass, Price each.....50 cts.
" 2, Mall. Iron, price per lb....15 "

STREET WASHER KEYS.

Malleable Iron.

Price per lb., 15 cents.

HYDRANT CLAMPS.

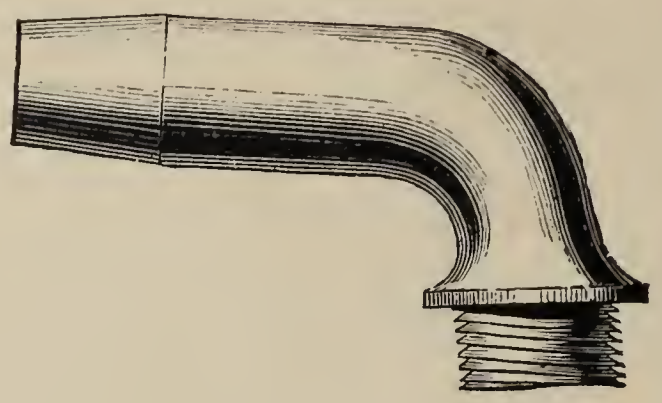


No. 1,	Brass,	($\frac{1}{2}$ or $\frac{5}{8}$ inch)	Price each,	20	cts.
" 2,	"	($\frac{3}{4}$ ")	" "	30	"
" 3,	"	(1 ")	" "	38	"
" 4,	Mall.	($\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$ ")	" per lb.	15	"
" 5,	"	(1 ")	" " "	15	"

HYDRANT ROD SOCKETS.

No. 1,	Brass,	$\frac{3}{8}$ inch,	Price each,	19	cts.
" 2,	"	$\frac{1}{2}$ "	" "	30	"
" 3,	"	$\frac{5}{8}$ "	" "	40	"
" 4,	Malleable Iron,	$\frac{3}{8}$ in.	per lb.	15	"

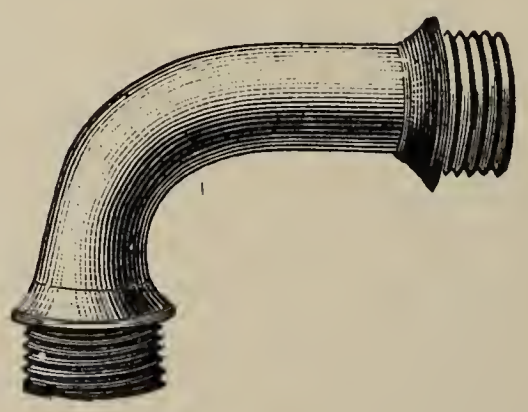
HYDRANT NOZZLES.



Size	$\frac{5}{8}$	$\frac{3}{4}$	1
Price, Plain	55	70	1 30
Price, Finished	60	75	1 40

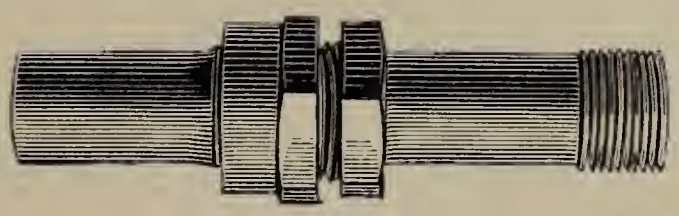
HYDRANT NOZZLES—WITH FLANGE.

For Iron Pipe and Hose.



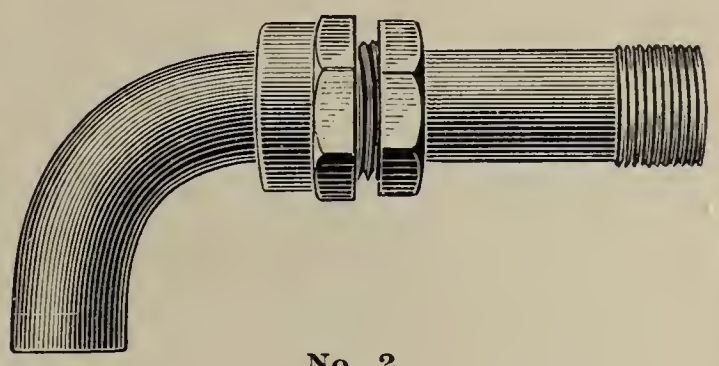
Size	$\frac{3}{4}$	1
Price, plain	95	1 25
Price, finished	1 00	1 35

WATER BACK COUPLINGS.



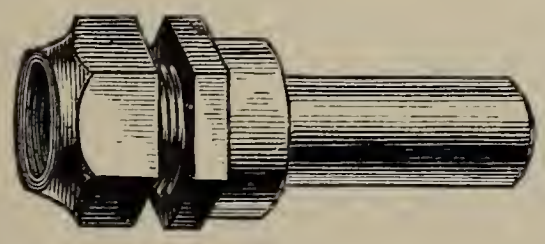
No. 1.

Size	½	¾
Price, not Ground	95	1 15
Price, Ground	1 05	1 25



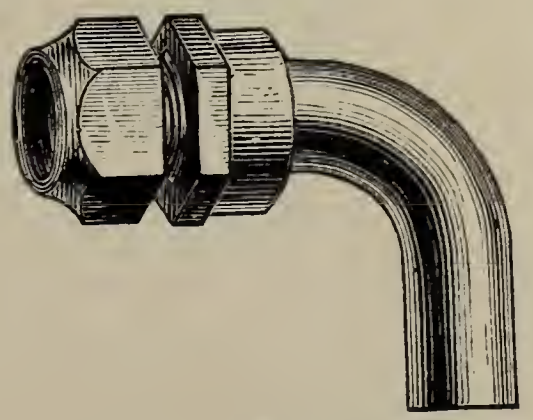
No. 2.

Size	½	¾
Price, not Ground	1 05	1 25
Price, Ground	1 15	1 35



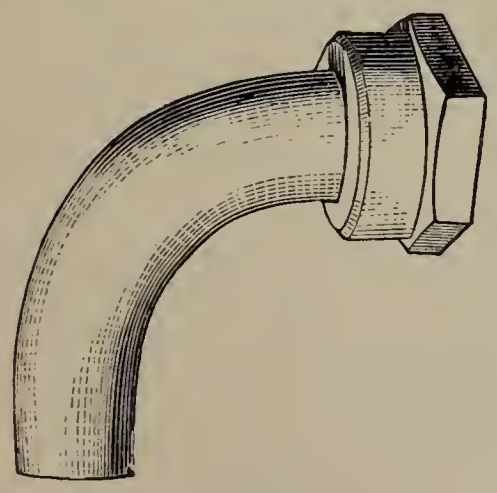
No. 3.

Size	½	¾	1
Price, not Ground	70	80	1 20
Price, Ground	80	95	1 30



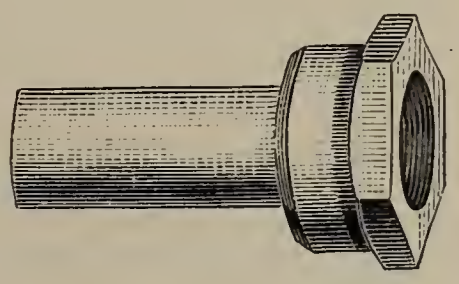
No. 4.

Size	½	¾	1
Price, not Ground	75	90	1 30
Price, Ground	90	1 00	1 40



No. 5.

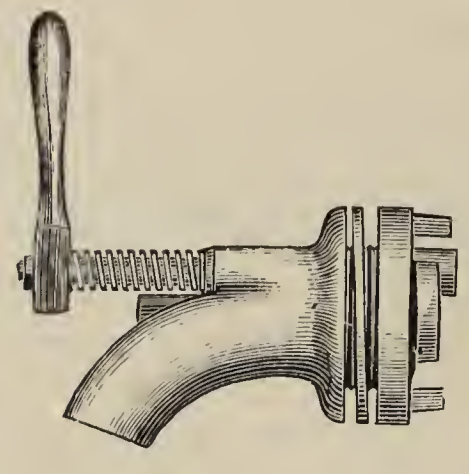
Size	½	¾	1
Price, not Ground	70	85	1 15



No. 6.

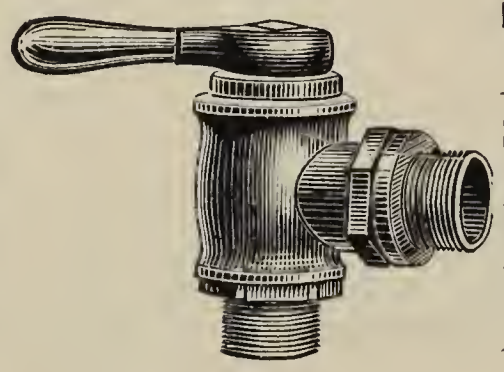
Size	½	¾	1
Price, not Ground	70	85	1 15

In ordering please designate by Numbers.



GATE LARD TANK DRAW-OFF COCKS.

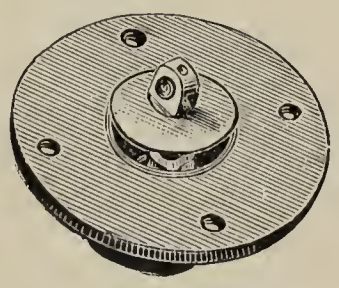
Size of Opening	1½	2
Price	5 00	7 00



BRASS LARD TANK COCKS.

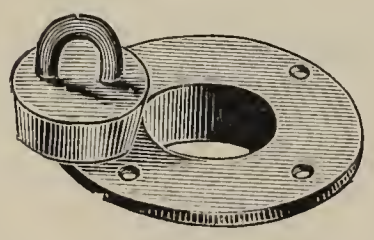
For Iron Pipe.

Size of Opening	1½	2
Price, for Iron Pipe	5 50	7 00
Price to screw into wood	6 00	8 00



TANK VALVES.

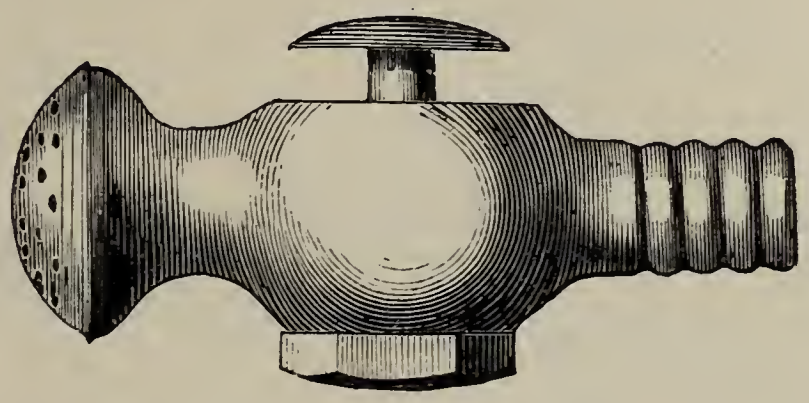
Size	2	2½	3	4
Price	3 50	4 50	6 00	9 00



VAT PLUGS, CAST IRON.

Size	2	2½	3	4
Price	2 50	3 25	4 75	6 50

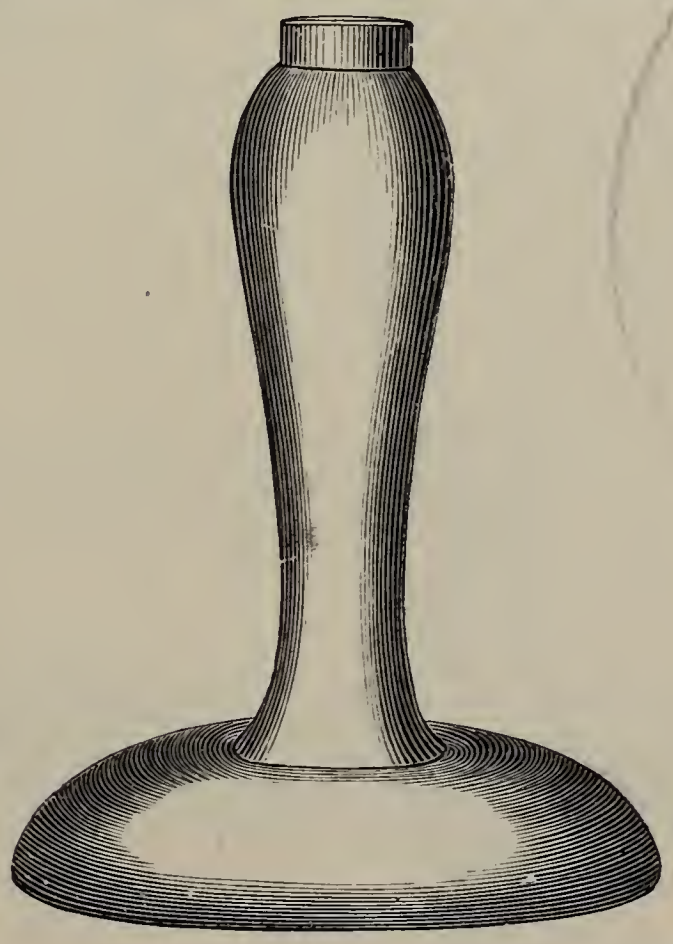
HOG WASH VALVES, WITH SPRINKLERS.



This is a great improvement over the Cock, doing the work more effectually, with less water, and at a saving of time.

SIZE.....1 inch. PRICE.....$2 70

IMPROVED CAST-STEEL HOG SCRAPERS.

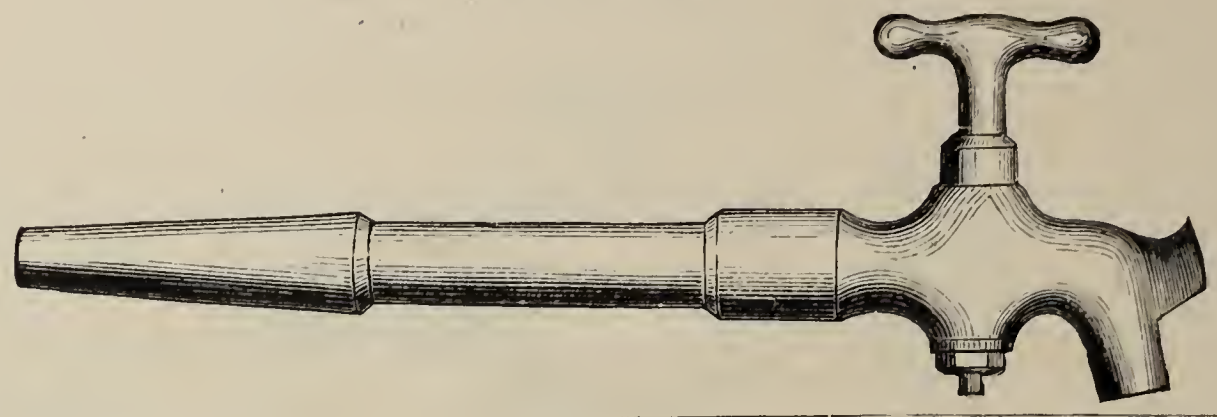


Packers will see at once the advantage of this Scraper. We claim that a man will do double the work with it.

PRICE.....75 cents.

LAGER BEER COCKS.

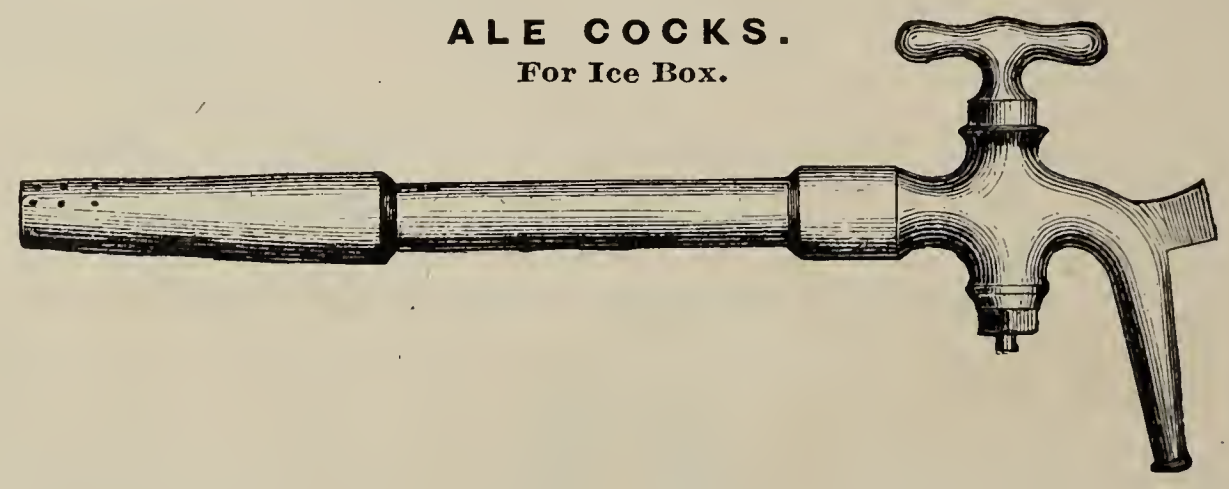
For Ice Box.



Size	14	16	18
Price, Finished	2 50	3 00	3 50

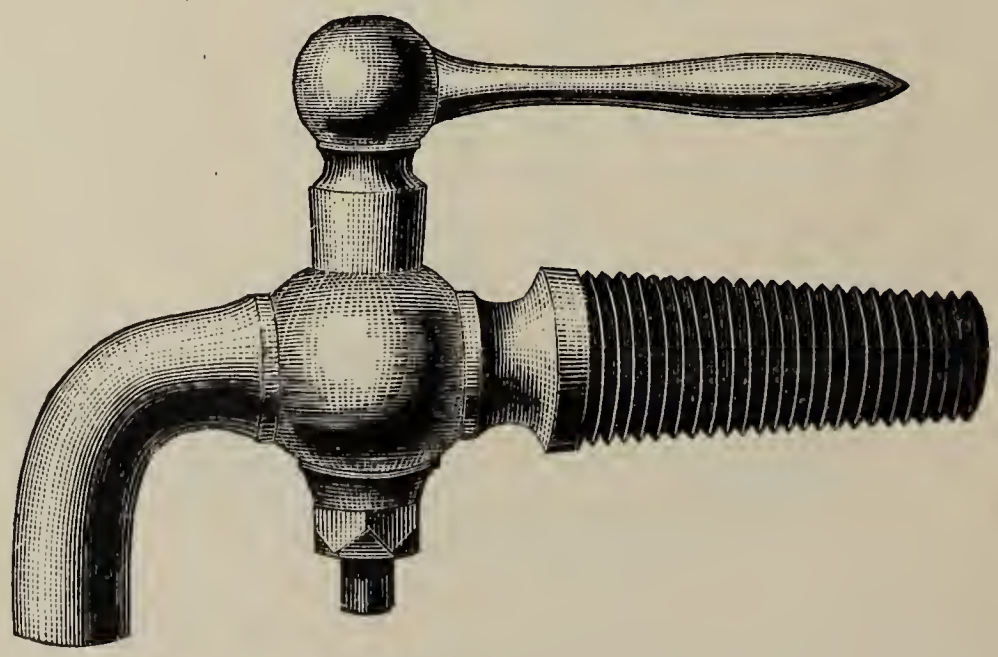
ALE COCKS.

For Ice Box.



Size	14	16	18
Price, Finished	2 50	3 00	3 50

LIQUOR COCKS.



Size	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
Price	1 20	1 45	1 85

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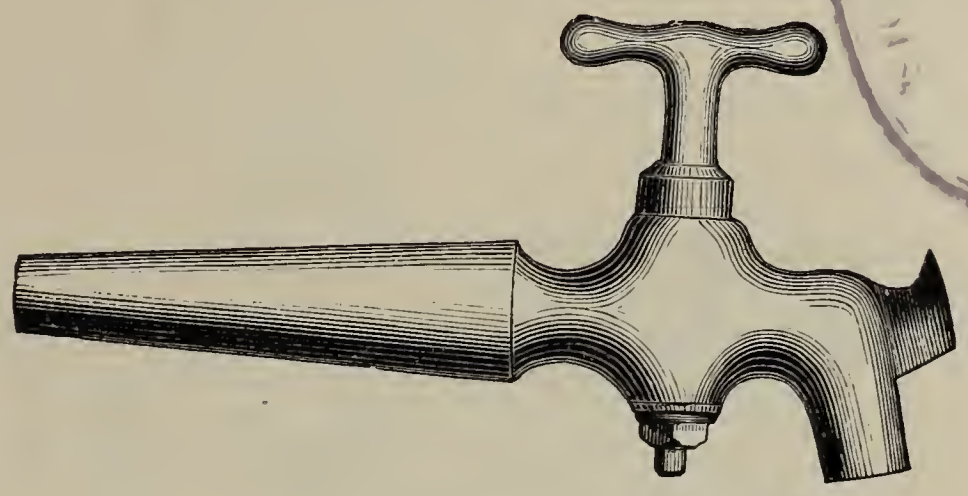
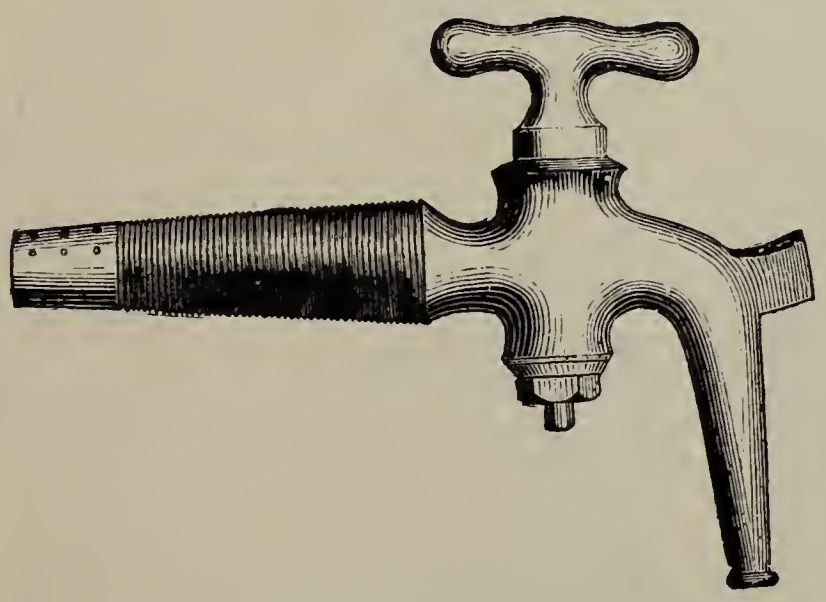
SHORT LAGER BEER COCKS.



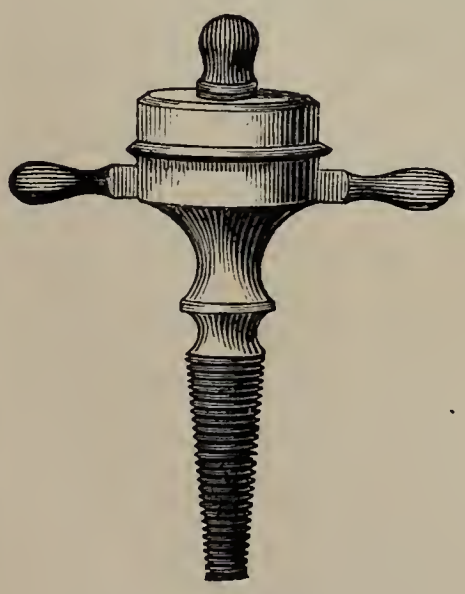
Price, Finished.....$2 25



ALE COCKS.

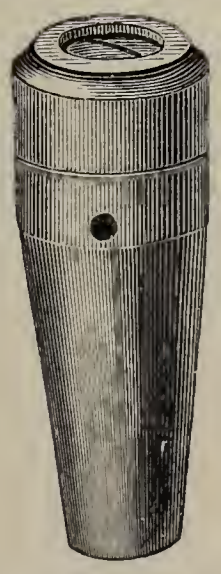
With Nose.

Price, Finished.....$2 25



BEER VENTS.

Self-Acting.



TO SCREW INTO VENT.

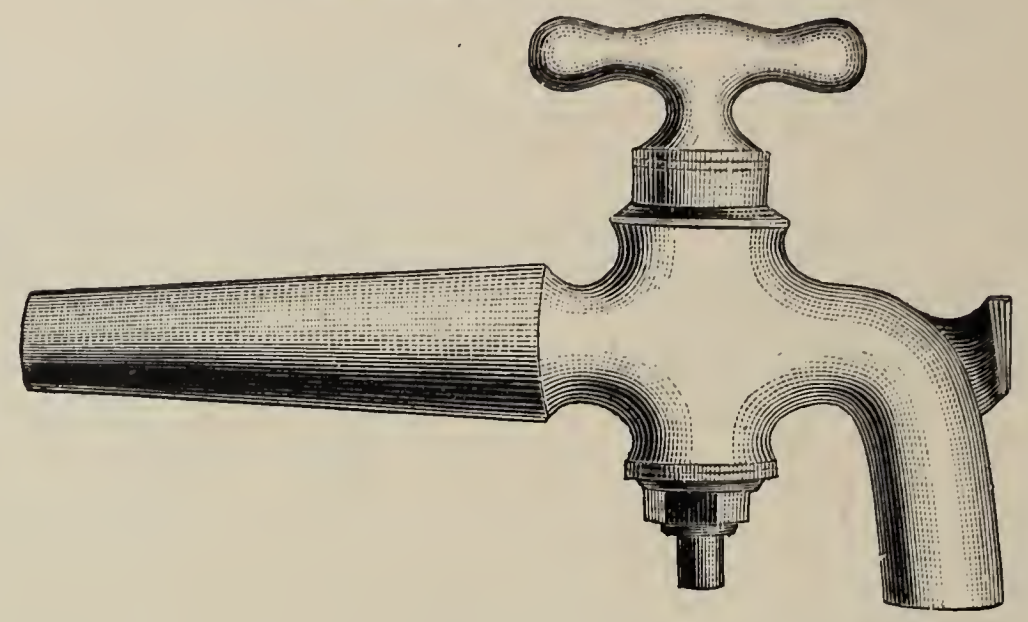
Price.....$0 60

TO DRIVE INTO TAP HOLE.

Price.....$1 00

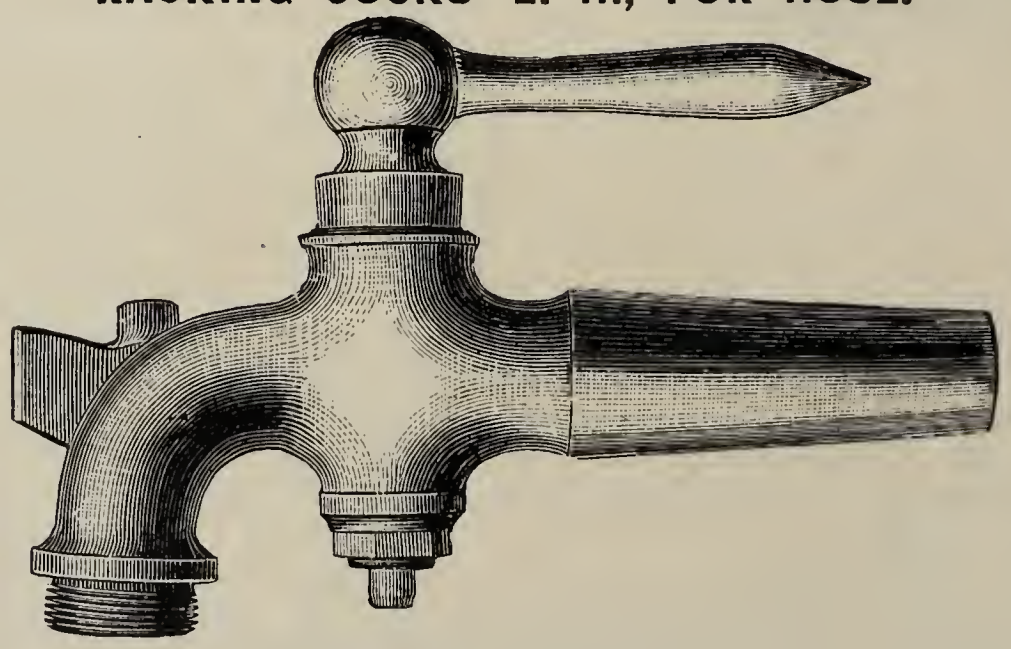
HEAVY RACKING COCKS—T HANDLE.

For Brewers' and Distillers' Use.



Size	¾	1	1¼	1½	2
Price, Tee or Lever Handle, plain	1 75	2 75	3 75	5 50	10 00
Price, Tee or Lever Handle, finished	2 25	3 25	4 50	6 50	12 00

RACKING COCKS—L. H., FOR HOSE.



Size	¾	1	1¼	1½	2
Price, Lever or Tee Handle, plain	2 00	3 10	4 25	6 00	11 00
Price, Lever or Tee Handle, finished	2 50	3 60	5 00	7 00	13 00

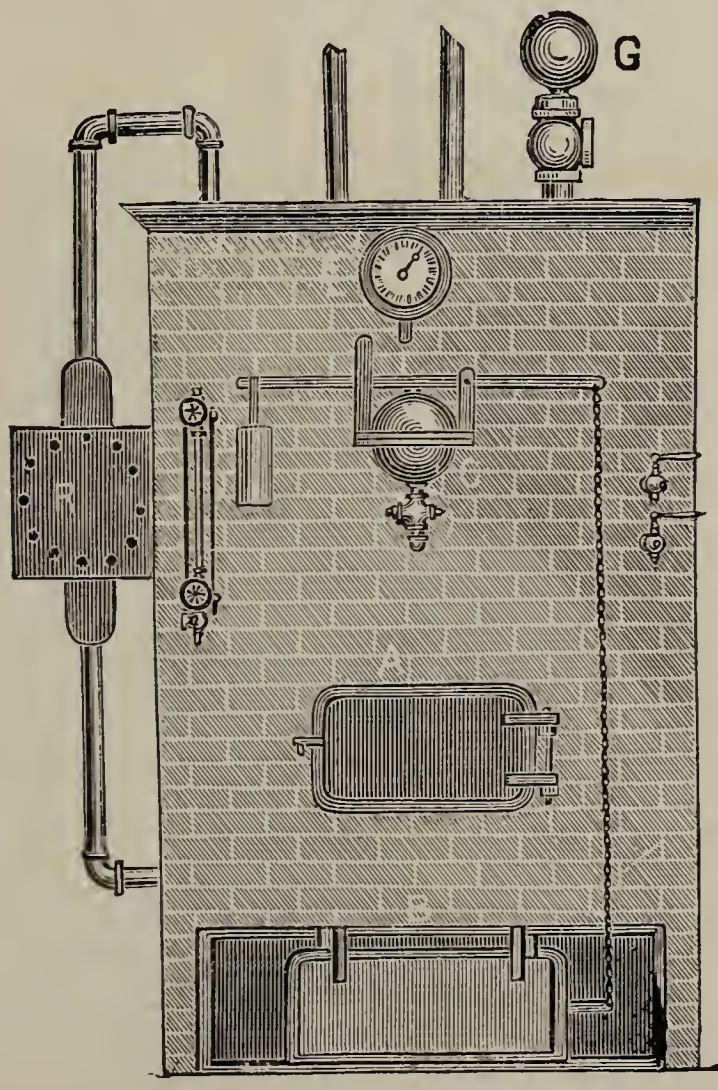
TANK COCKS AND COUPLING.

For Brewers' and Distillers' Use.

Price of Single Tank Cock and Coupling $2 00
" " Double " " " " 3 00

LOW-PRESSURE STEAM GENERATORS.

FRONT ELEVATION OF GENERATOR AND ATTACHMENTS.



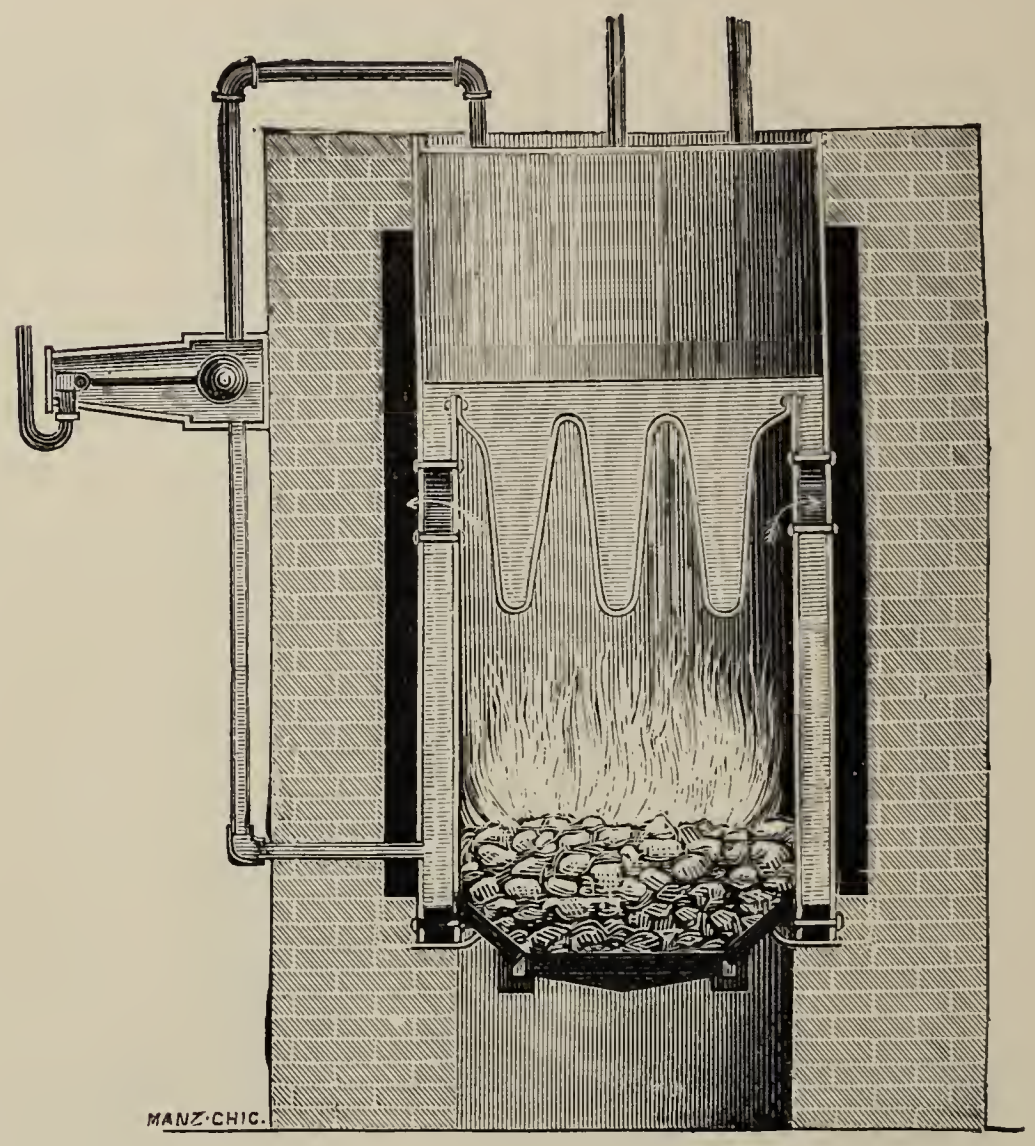
These Generators have been in use for fifteen or twenty years, and we have found, after careful research and considerable experience, may be advantageously used for low-pressure warming; they require the least attention in cleaning, are durable, and quite economical. The Fire Grate is the same as used in Base-burning Coal Stoves, and is known as the Basket Shaking Grate. These Generators will burn either hard or soft coal, but are particularly recommended for soft coal.

We have tested the Generator to 80 lbs. per square inch hydraulic pressure; but would not recommend a higher working pressure than 15 lbs.

We are now making them for the general trade, and will put the name of the purchaser on the fire door, if requested, without charge.

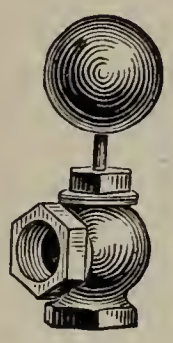
Dimensions.	No. 3	No. 5	No. 7
Generator Height, outside ..... Inches	66	66	66
" Diameter " ..... "	30	36	42
Fire Box " " ..... "	24	30	36
" Height " ..... "	24	24	24
Total Weight complete ..... lbs.	1400	1900	2460
Capacity of square feet of warming surface, direct radiation	375	625	875
" " " " " " indirect "	300	500	700

SECTIONAL VIEW OF GENERATOR.



Sizes	No. 3.	No. 5.	No. 7.
Generator alone, Price	$150 00	210 00	245 00
Fire Door and Frame, fitted, Price ....A	7 00	7 00	8 50
Ash Door and Frame, fitted, Price ....B	9 50	9 50	9 50
Grate, fitted, price	7 00	15 00	22 50
Total	173 50	241 50	285 50

TRIMMINGS FOR GENERATORS.



BALL SAFETY VALVE.

Size.....inches	1	1¼	1½	2
Price.....	3 50	4 00	5 00	7 00

Damper Regulator, C, complete, 6 inch..... $10 00

Water Regulator, R..... 18 00

Cold Air Regulator..... 7 00

" " " Damper Irons..... 3 00

Water Gauge No. 2, Round Body.....
Gauge Cocks, Brass Lever Handle.....
Low Pressure Steam Gauge.....
" " " " .....

For List see pages 51, 53, 55.

Soot Doors, 4x4..... 90

" " 8x8..... 1 65

EXTRAS.

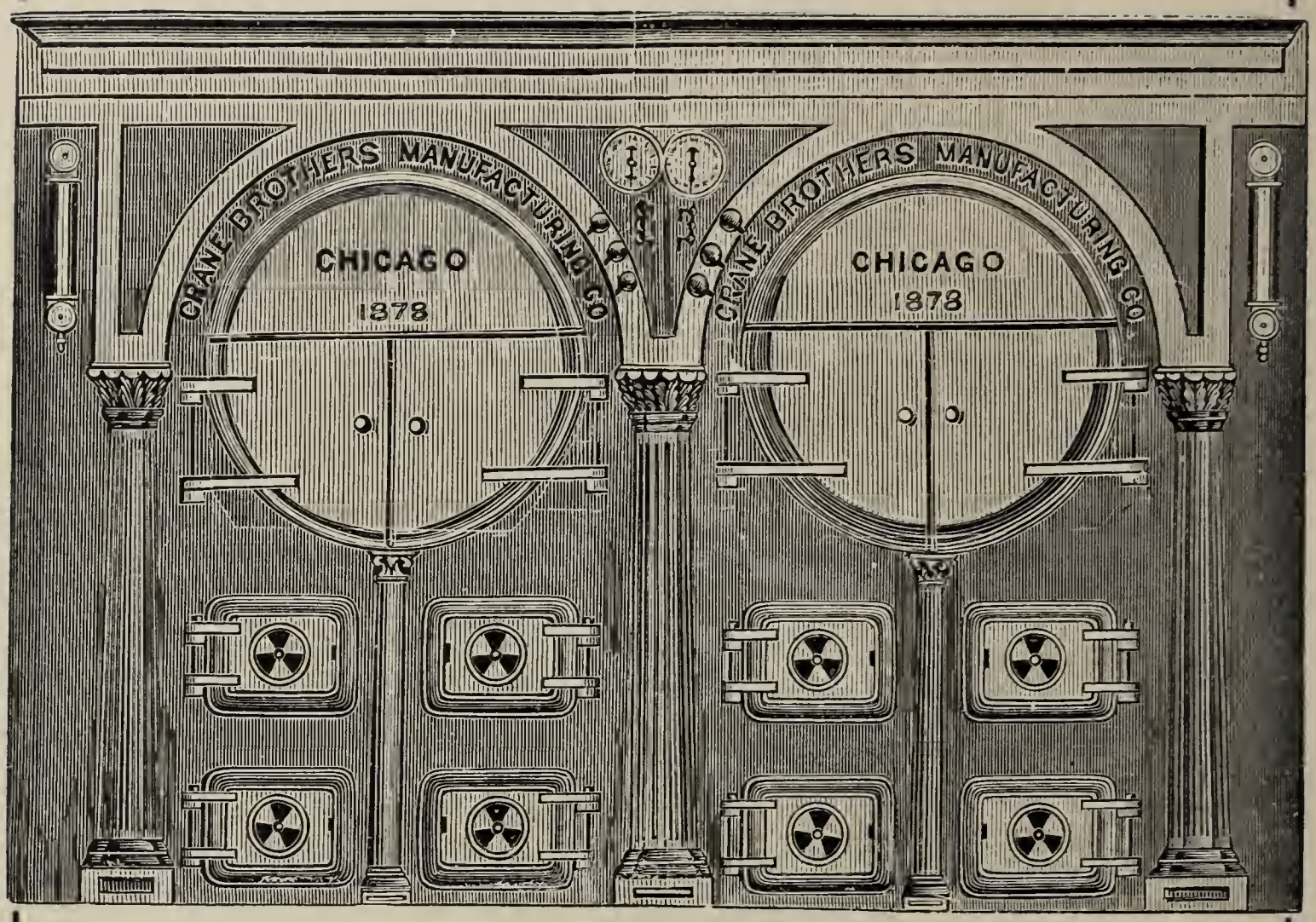
Mannole Door, fitted, 12x16..... $ 5 00

Locomotive " " 8x12..... 5 75

" " " 10x15..... 7 25

" " " 12x18..... 9 50

Extra Rubber for Damper Regulator..... 1 75



The above cut represents our Improved Column Pattern Double Boiler Front.

Prices of Single Fronts include both front and back Grate Bar Plates, two Arch Plates, and four Side Liners.

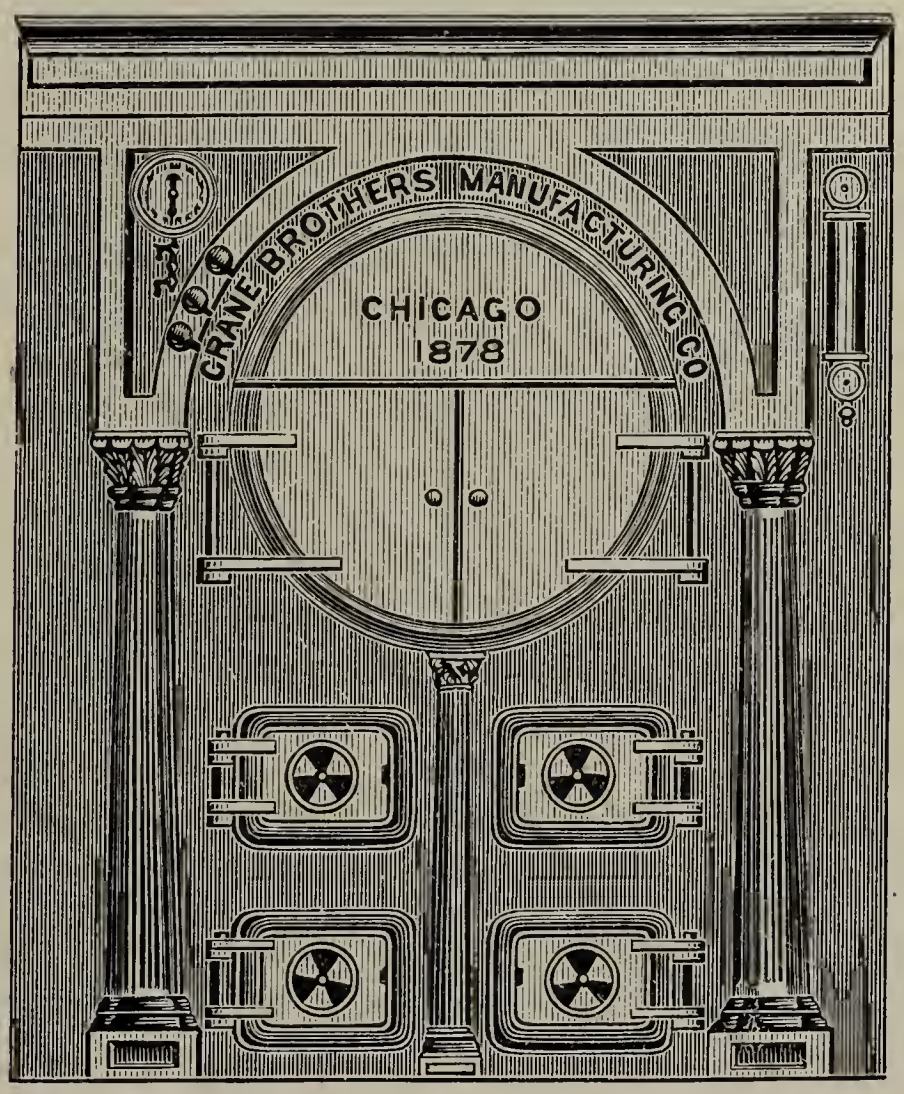
We have Patterns for 36 and 42-inch Half Fronts. Prices of same include one Arch Plate, bolted to front, and one front and back Bearing Bar.

We will attach our Automatic Draft Door for low pressure, including Diaphram, Weight Chain and Lever, to any of our Fronts, for $10 net.

We will put the name of the customer on the Front, if desired, at an extra charge of $2 net.

IMPROVED SINGLE BOILER FRONT.

Column Pattern.

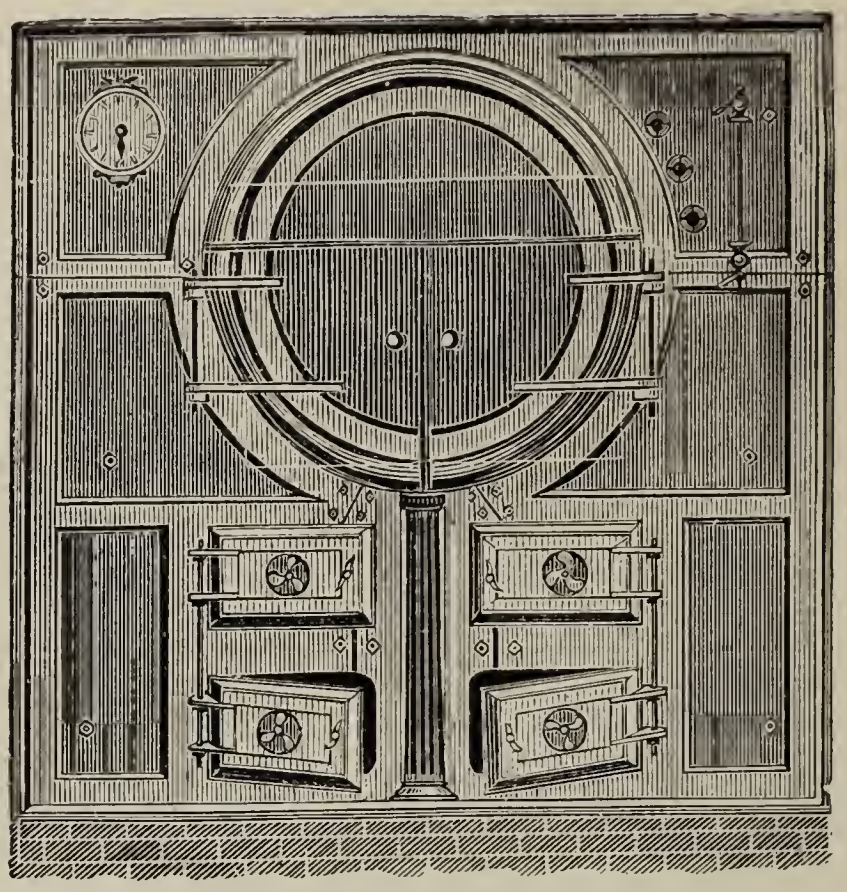


Diameter of Boiler.	Width of Front.	Height of Front.	Height to Grate Bed.	From top of Grate to Boiler.	Standard Depth of Lining.	Price.
42 in.	7 ft. 3½ in.	7 ft. 8¾ in.	18 in.	18 in.	16 in.	$130 00
48 in.	7 ft. 10 in.	8 ft. 3 in.	19 in.	21 in.	16 in.	180 00

Double Boiler Fronts at double these Prices.

SINGLE BOILER FRONT

Panel Pattern.



Diameter of Boiler.	Width of Front.	Height of Front.	Height to Grate Bed.	From top of Grate to Boiler.	Standard Depth of Lining.	Price.
30 in.	6 ft.	5 ft. 5 in.	16 in.	17 in.	12 in.	$ 40 00
36 "	6 ft. 6 in.	6 ft. 3½ "	18 "	18 "	16 "	80 00
42 "	7 ft. 2½ "	6 ft. 9 "	18 "	18 "	16 "	110 00
48 "	7 ft. 7 "	7 ft. 7 "	18½ "	20 "	16 "	134 00
54 "	8 ft. 1 "	8 ft. 4 "	21 "	21 "	20 "	170 00
60 "	8 ft. 8 "	9 ft. 9 "	26 "	26 "	20 "	200 00

Half Front, 36-inch, $42 00; 42-inch, $58 00.

Double Boiler Fronts at double these Prices.

The 30-inch Front is made plain (without panels), and has two doors only.

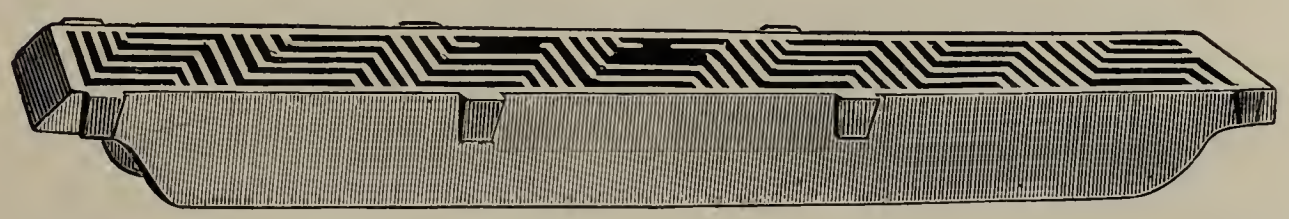
The 36-inch Front same as above cut, except it has two instead of four doors.

GRATE BARS, COMMON PATTERN.

Length, feet	2	2½	3	3½	4	4½	5
Width, inches	2¾	3	3	3	3	3	3
Width of opening, inches	½	½	½	½	½	½	½
Weight of each, lbs.	20	29	40	41	54	65	112
Weight per square foot	45	45	53	47	54	58	89½
Price per ℔b.							

Grate Bars, Close Pattern, ¼c. per ℔b. extra.
" " Single " and odd sizes, ¼c. to ½c. per ℔b. extra.

CRANE BROS. MANFG. CO.'S GRATE BAR.



Length, feet	2	2½	3	3½	4	4½	5
Width, inches	6	6	6	6	6	6	6
Width of opening, inches	½	½	½	½	½	½	½
Weight of each, lbs.	54¾	68½	82	96	110	123	137
Weight per square foot	54 8/10	54 8/10	54 8/10	54 8/10	54 8/10	54 8/10	54 8/10
Price per ℔b.							

We make to order any size not included in above table; also all sizes of Common Grate Bars, ¼-inch and ½-inch openings; also Single Bars and Tan-bark Grate Bars, and a variety of sizes of Round Grates.

BACK ARCH FRAMES.

Diameter of Boiler...inches	30	36	42	48	54	60
Back Arch Frames, wt. lbs...	145	145	160	175	190	205
Price each.....						

BOILER BRACES.

Weight, lbs.....	54	65	76	81	81	106
Price per lb.....cents.						

BRACE BOLTS.

Diameter of Bolts.....inches	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Average Weight per single set of 10...lbs.	110	126	196	216	237	241
Average Weight per double set of 13...lbs.	166	193	306	339	371	378
Price per lb.....						

Furnace Linings.....Price per lb., cents.

HOT-AIR REGISTERS AND VENTILATORS.

SIZE OF OPENING.	Actual Square Inches Opening.	REGISTERS.				FACES.	
		Black or White Japanned.	White Enameled.	Nickel Plated.	Without Valves.	White Enameled.	Black or White Japanned.
4½ x 6½	20	$1 30	$2 75	$2 95	$0 90	$1 90	$0 46
4 x 8	22	1 50	3 00	3 25	1 00	2 00	0 48
4 x 10	27	1 65	3 25	3 50	1 15	2 10	0 50
4 x 15	40	2 30	4 00	4 25	1 60	2 60	0 75
4 x 18	48	2 50	4 50	4 80	1 75	2 85	0 85
6 x 8	32	1 80	3 50	3 75	1 20	2 30	0 62
6 x 9	36	1 95	3 65	3 95	1 30	2 40	0 66
6 x 10	40	2 10	3 80	4 10	1 45	2 50	0 70
6 x 14	56	2 70	4 60	5 00	1 95	2 80	0 90
6 x 16	64	3 00	5 00	5 40	2 10	3 20	1 10
6 x 18	85	3 40	5 45	5 85	2 40	3 40	1 35
6 x 24	96	6 36					2 15
7 x 10	47	2 30	4 25	4 50	1 60	2 60	0 75
8 x 8	42	2 25	4 20	4 50	1 50	2 75	0 80
8 x 10	54	2 50	4 50	4 85	1 75	2 85	0 85
8 x 12	64	2 80	4 80	5 20	2 00	3 00	1 00
8 x 15	80	3 60	5 75	6 15	2 55	3 60	1 50
8 x 18	96	4 20	6 50	6 95	3 05	4 05	1 75
9 x 9	54	2 65	4 65	5 00	1 85	3 00	1 00
9 x 12	72	3 30	5 30	5 70	2 35	3 25	1 25
9 x 14	84	3 60	5 75	6 20	2 55	3 65	1 50
10 x 10	66	3 25	5 25	5 65	2 30	3 20	1 20
10 x 12	80	3 60	5 75	6 15	2 55	3 60	1 50
10 x 14	94	4 00	6 20	6 65	2 86	4 00	1 75
10 x 16	107	4 50	6 75	7 25	3 25	4 30	2 00
10½ x 16½	115	4 85	7 10	7 60	3 50	4 35	2 10
12 x 12	96	4 20	6 50	6 95	3 05	4 05	1 75
12 x 15	120	5 00	7 40	7 90	3 70	4 40	2 00
12 x 19	150	6 00	8 50	9 10	4 50	5 00	2 50
14 x 22	200	8 00	11 25	12 25	5 50	6 35	3 10
15 x 25	250	10 00	14 20	15 20	7 20	9 00	4 75
16 x 16	171	7 50	10 25	11 00	5 00	5 75	3 00
16 x 20	214	8 50	11 50	12 50	6 30	7 00	4 00
16 x 24	256	10 50	14 75	15 85	7 65	9 25	5 00
20 x 20	267	10 50	14 75		7 65	9 25	5 00
20 x 26	378	13 50	20 00		9 75	13 00	6 00
21 x 29	609	17 00			12 00	BLACK FACE, Extra Heavy,	7 00
27 x 27	486	30 00			21 00		11 50
27 x 38	645	28 00			20 00	6 x 8..1 10 8 x12..1 70	12 00
30 x 30	600	26 00			18 50	10 x14..2 50 10 x16..3 25	11 25

☞ In ordering Ventilators, if wanted to stand endwise, or if to go on ceiling directly over head, the fact should be stated.

HOT-AIR REGISTERS AND VENTILATORS.

SIZE OF OPENING.	VENTS.		IRON BORDER FRAMES.		
	White or Black For Cords.	White Enameled.	Nickel Plated.	White Enameled.	Black Japanned.
4½ x 6½	$1 40	$2 85			
4 x 8	1 60	3 10			
4 x 10	1 75	3 35			
4 x 15	2 40	4 10			
4 x 18	2 62	4 62			
6 x 8	1 90	3 60	$2 80	$2 50	$0 80
6 x 9	2 05	3 75	2 90	2 60	0 90
6 x 10	2 20	3 90	3 00	2 70	1 00
6 x 14	2 80	4 70	3 40	3 10	1 20
6 x 16	3 10	5 12			
6 x 18	3 52	5 55	3 80	3 45	1 40
6 x 24					
7 x 10	2 40	4 35	3 40	3 05	1 10
8 x 8	2 35	4 30	3 30	3 00	1 05
8 x 10	2 62	4 62	3 50	3 15	1 15
8 x 12	2 92	4 92	3 60	3 25	1 25
8 x 15	3 72	5 87	4 00	3 60	1 45
8 x 18	4 32	6 65	4 40	4 00	1 65
9 x 9	2 75	4 75	3 50	3 15	1 15
9 x 12	3 42	5 42	3 70	3 35	1 30
9 x 14	3 72	5 87	3 90	3 55	1 40
10 x 10	3 37	5 37	3 65	3 30	1 30
10 x 12	3 72	5 87	4 00	3 60	1 45
10 x 14	4 12	6 32	4 15	3 75	1 55
10 x 16	4 65	6 90	4 35	3 90	1 65
10½ x 16½	5 00	7 25	4 45	4 00	1 75
12 x 12	4 35	6 65	4 30	3 90	1 60
12 x 15	5 15	7 55	4 60	4 15	1 75
12 x 19	6 15	8 65	5 40	4 80	2 30
14 x 22	8 15	11 50	7 25	6 25	3 00
15 x 25	10 25	14 45	9 40	8 35	4 15
16 x 16	7 65	10 40	6 65	5 75	3 00
16 x 20	8 70	11 70	7 75	6 75	3 75
16 x 24	10 75	15 00	9 75	8 60	4 35
20 x 20	10 75	15 00		8 60	4 35
20 x 26	13 75	20 25		12 00	5 45
21 x 29					6 00
27 x 27					7 00
27 x 38					8 00
30 x 30					7 00

CIRCULAR-TOP VERTICAL-WHEEL REGISTERS.

Size of Opening.	Register Black Japanned.	Register White Enameled.	Register Nickel Plated Cop'r Bronz'd.	Ventilator White or Bl'k For Cords.	Register Face Japanned.	Register Face Enameled.
7 x 10	$2 25	$	$	$2 35	$0 90	$
8 x 12	2 95	5 00	5 35	3 10	1 15	3 20
8 x 14	3 40	5 40	5 75	3 55	1 30	3 30
9 x 12	3 40	5 40	5 75	3 55	1 30	3 30
10 x 14	4 10	6 30	6 70	4 25	1 75	3 95
11 x 16	4 60	7 00	7 40	4 75	1 90	4 30
12 x 17	5 20	8 00	8 50	5 35	2 00	4 80
11 x 13	3 55	5 75	6 15		1 55	3 75
13 x 15	4 60	7 00	7 45		1 75	4 15
16 x 17	6 50	9 25	9 85		2 50	5 25

LOCK OR ASYLUM REGISTERS.

Close Fret Work and Operated by Key.

Size of Opening.	Black Japanned.	Without Valves.	Register Face.	Face Extra Heavy
10 x 9 in.	3 15	2 00	1 20	
10 x 12"	4 00	2 75	1 70	2 50
10 x 16"	5 00	3 40	2 15	3 00
10 x 20"	6 20	4 65	2 65	3 50

ROUND GRATINGS.

Black Japanned.

Very Heavy. No Valves.

Size.	Gratings.	Borders.
30 in.	$ 9 00	$ 8 00
36 "	13 50	13 00
48 "	30 00	

CEILING VENTILATORS—FOR CHURCHES AND LARGE HALLS.

Painted and Tipped with Bronze.

24 in.	30 in.	36 in.	48 in.	60 in.
7 00	10 50	14 00	25 00	35 00

Radiators, Coils and Screens.

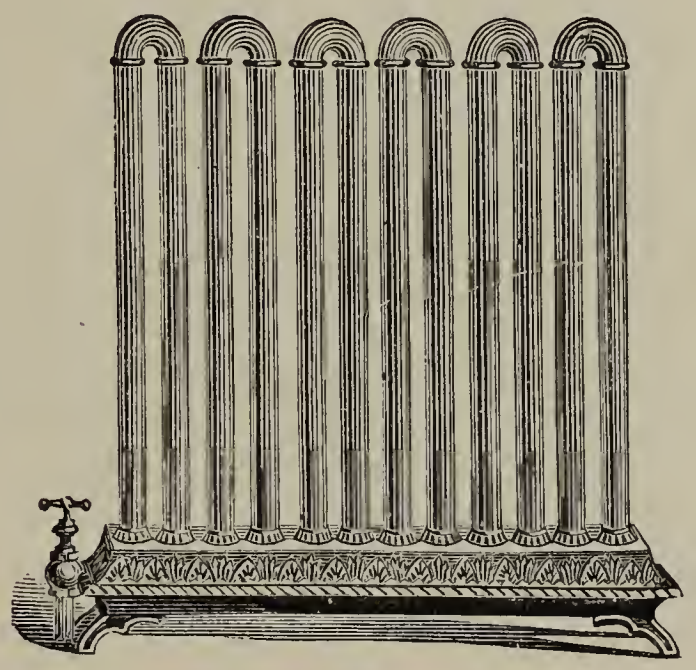
The extensive and very satisfactory use of our ***Radiators, Coils and Screens,*** by the Steam Fitting Trade of the Northwest, during the past twelve years, is conclusive evidence of their superiority. It is therefore unnecessary to make any very extended remarks in this Catalogue; but we will say that we are now manufacturing a large number of new sizes, from entirely new and original designs, which, for beauty of finish and elegance of style, are not equaled by any in the market.

The growing demand for these goods is such that we have been obliged to make extensive arrangements for their manufacture, which places us in a position to supply them in large quantities, and at short notice.

Our enlarged facilities for manufacturing enable us to make low prices to the trade.

We invite your attention to the following pages.

RADIATORS.



ONE-INCH VERTICAL RADIATOR.

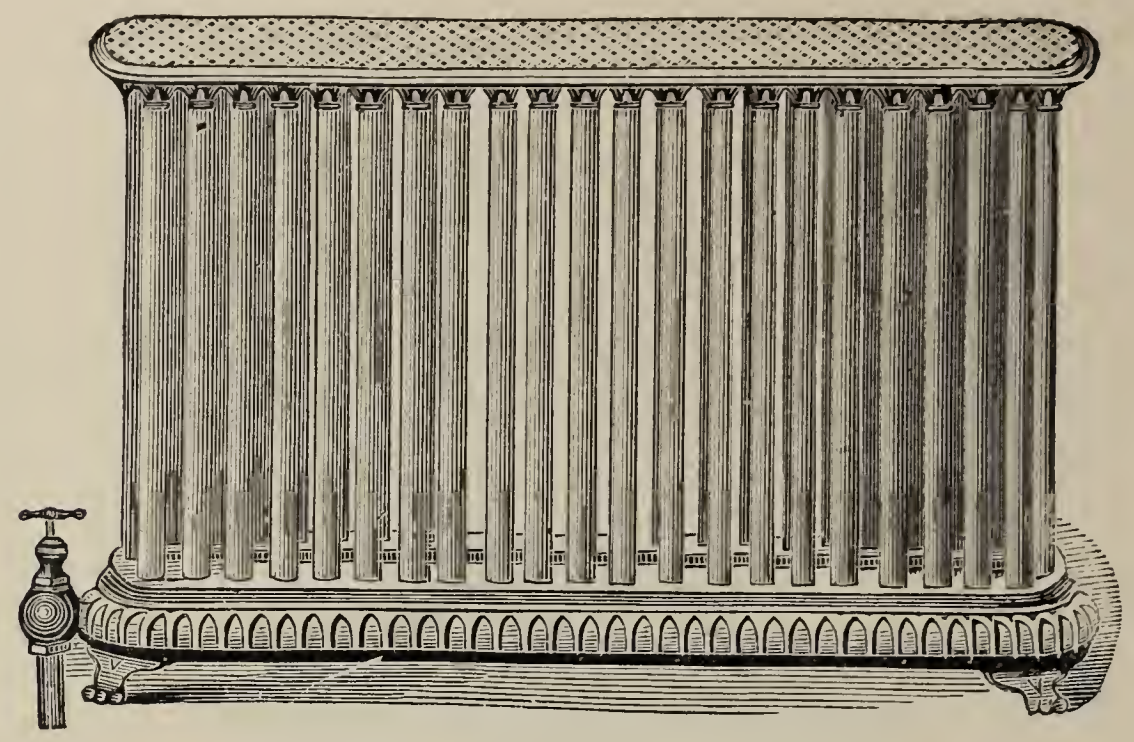
One Tube Wide.

No. of Tubes	10	12
Height of Radiator ..... Inches	36	36
Length of Base without valve ..... Inches	$20\frac{3}{4}$	$24\frac{1}{2}$
Width of Base ..... Inches	5	5
Price, each, Bronzed	$9 25	$10 50
Price, each, Plain	$8 00	$9 00

Radiators with only ***one connection*** have the ***inlet one size larger*** than the specified ***size of inlet*** to the ***valve.*** ***Our Valves*** are made with a male thread to ***correspond*** with the size of the ***inlet,*** and with a ***left*** female thread on the lower part of the valve, to connect with the ***mains.***

In ordering Radiators it is necessary to be ***explicit*** in stating the ***size*** of ***inlets*** and ***outlets,*** and if they should be at ***opposite ends*** or not.

Radiators two tubes wide are usually made with ***inlets*** and ***outlets*** at ***opposite ends.*** Radiators ***four tubes wide*** may have both these connections at ***same end.***



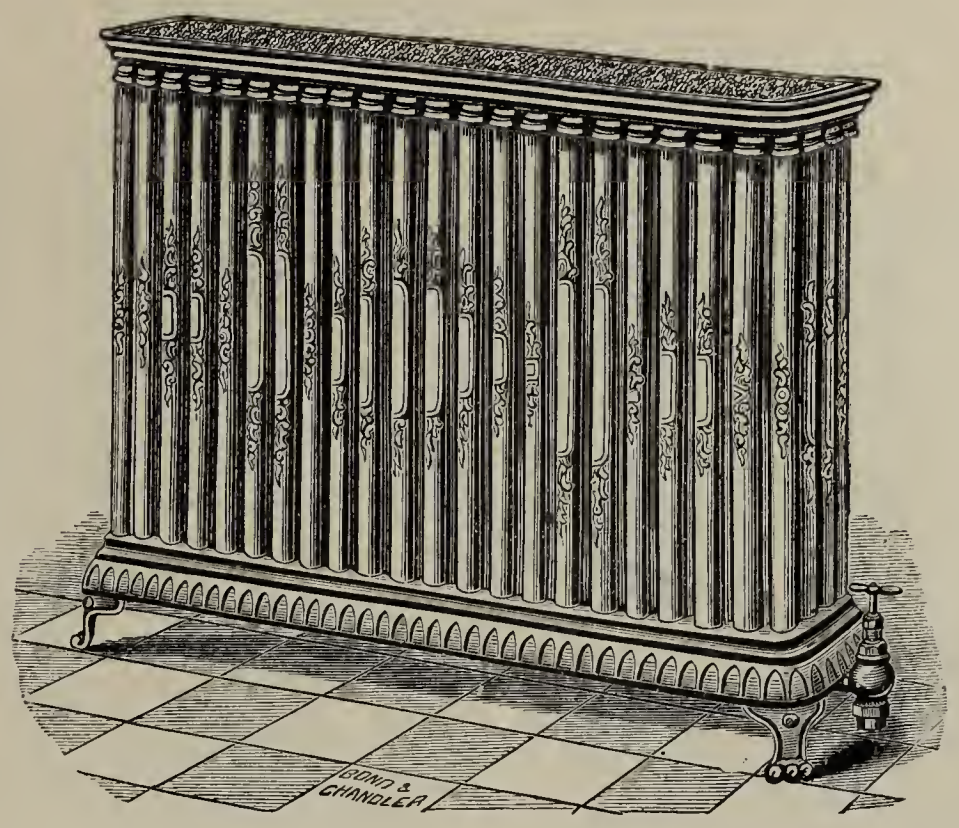
ONE-INCH VERTICAL RADIATOR.

Two Tubes Wide.

The following are the prices (without valves), ***iron top,*** as shown above, Plain and Bronzed. Painted and oramented in any style desired at an extra charge. ***Marble Top,*** extra.

No. of Tubes	14	18	24	30	36	42	48
Height of Radiator ..... inches	34½	34½	34½	34½	34½	34½	34½
Length of Base, without Valve, in.	15½	20	25½	31	36½	42	47½
Width of Base ..... inches	6½	6½	6½	6½	6½	6½	6½
Price, each, Bronzed	11 75	14 25	18 00	21 75	25 50	29 25	33 00
Price, each, Plain	10 00	12 00	15 00	18 00	21 00	24 00	27 00
Size of Valve when but one is used	¾ x 1	¾ x 1	¾ x 1	1 x 1¼	1 x 1¼	1 x 1¼	1 x 1¼

Re-bronzing, 10 cents per Tube.



ONE-INCH VERTICAL RADIATOR.

Four Tubes Wide.

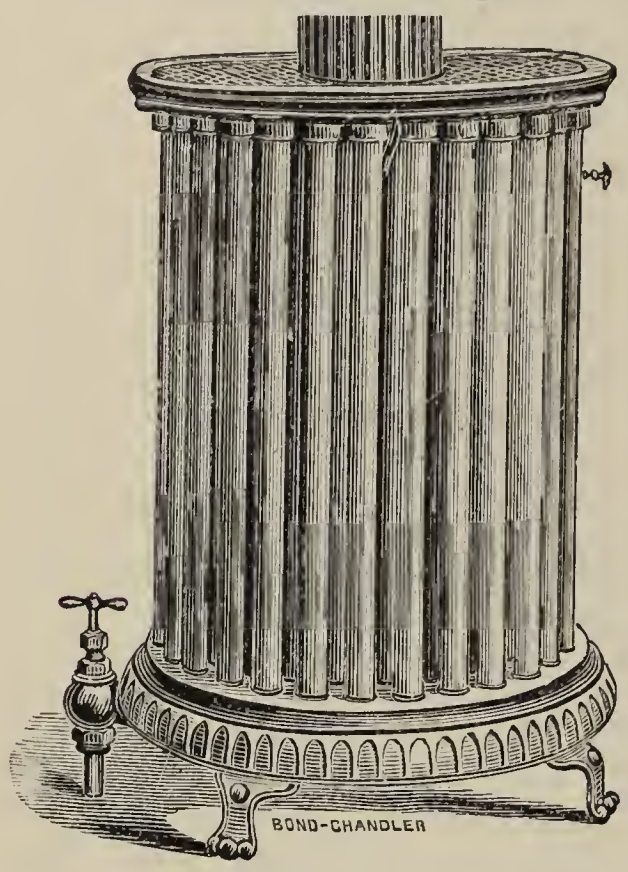
The following are the Prices (without valves), ***iron top,*** as shown above, Plain and Bronzed. Painted and ornamented in any style desired at an extra charge. ***Marble Top,*** extra.

No. of Tubes	40	48	56	72	88	104
Height of Radiator, inches	38	38	38	38	38	38
Length of Base, without Valve inches.	$24\frac{3}{4}$	$29\frac{1}{2}$	$34\frac{1}{4}$	$43\frac{1}{2}$	$53\frac{1}{4}$	$62\frac{1}{4}$
Width of Base, inches.	12	12	12	12	12	12
Price, each, Bronzed	29 00	34 50	40 50	51 50	63 00	74 50
Price, each, Plain	26 00	31 00	36 00	46 00	56 00	66 00
Size of Valve when but one is used	$1x1\frac{1}{4}$	$1\frac{1}{4}x1\frac{1}{2}$	$1\frac{1}{4}x1\frac{1}{2}$	$1\frac{1}{4}x1\frac{1}{2}$	$1\frac{1}{2}x2$	$1\frac{1}{2}x2$

Re-bronzing, 10 cents per tube.

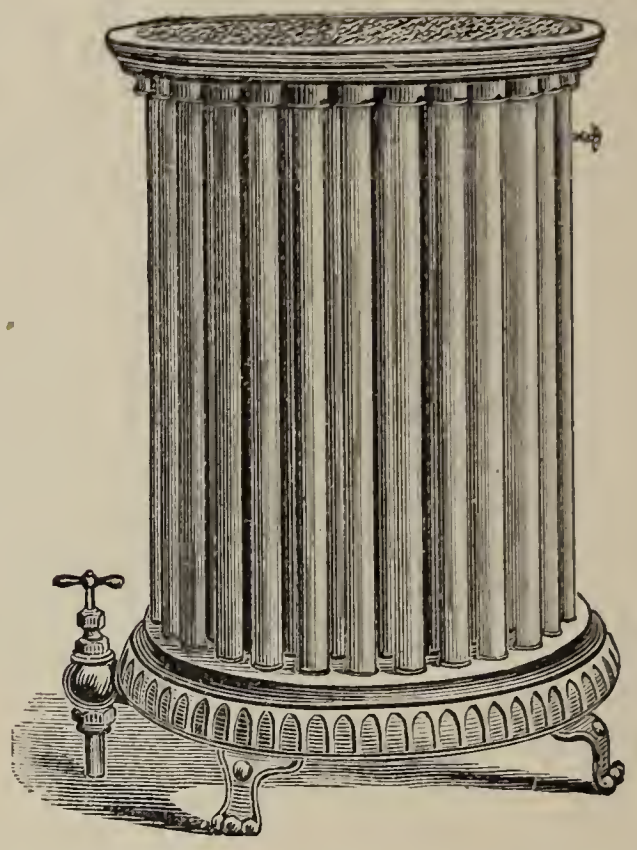
NO. 1 ROUND RADIATOR,

To place around Columns in Stores and Office Buildings.



NO. 2 ROUND RADIATOR,

For General Use.



The following are the prices (without valves), ***iron top,*** as shown above, Plain and Bronzed. Painted and ornamented in any style desired at an extra charge. ***Marble top,*** extra.

COLUMN RADIATOR.

No. of Tubes.	Outside Diameter. Inches.	Diam. of opening for Column.	Price, Plain.	Price, Bronzed.
76	29½	12 in.	55 00	61 00
102	36	18 in.	75 00	83 00

ROUND RADIATOR.

No. of Tubes.	Outside Diam. Inches.	Price, Plain.	Price, Bronzed.
20	15	14 50	16 00
40	19½	28 00	31 00
50	22½	34 00	38 50
60	25¼	40 00	46 50

Re-bronzing, 10 cents per tube.

COILS.

We make a specialty of the manufacture of these Goods, both Plain and Ornamental, and believe we can satisfy you that it will be to your advantage to purchase directly of us in preference to making them.

Coils made to order, of intermediate lengths from those described in list, will be furnished at same price per foot as the next length shorter.

Our Coils are made of whole pipe, no couplings being used. In the Box Coils we now use Slats (as shown) instead of Stands, as formerly.

We keep material in stock for the immediate manufacture of most of the sizes named in Tables, and can usually fill an order upon short notice.

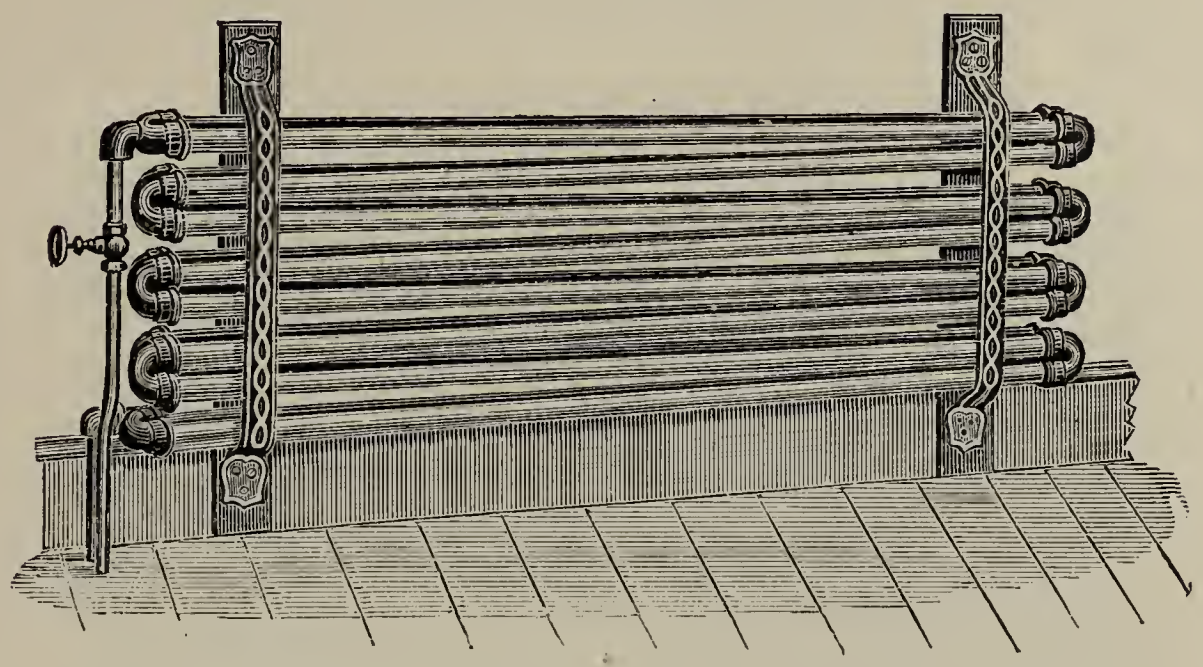
☞ The accompanying Tables of Coils will prove of value, as they contain a great variety of shapes and sizes, with the number of feet in each coil, enabling you to select one suitable for almost any place desired.

TABLE OF NUMBERS AND SIZES OF ONE-INCH ORNAMENTAL COILS.

Extreme Height of Coil-Stands in inches.	Extreme Width of Coils.	No. of Pipes high.	No. of Pipes wide.	7¼ feet long.		6 feet long.		5½ feet long.		5 feet long.		4½ feet long.		4 feet long.		3½ feet long.		3 feet long.	
				Nos. of Coils.	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos .of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.
32	4⅝	12	2	**1**	174	**3**	144	**4**	132	**5**	120	**6**	108	**7**	96	**8**	84	**9**	72
27½	4⅝	10	2	**11**	145	**13**	120	**14**	110	**15**	100	**16**	90	**17**	80	**18**	70	**19**	60
22½	4⅝	8	2	**21**	116	**23**	96	**24**	88	**25**	80	**26**	72	**27**	64	**28**	56	**29**	48
18	4⅝	6	2	**31**	87	**33**	72	**34**	66	**35**	60	**36**	54	**37**	48	**38**	42	**39**	36
32	7½	12	3	**41**	261	**43**	216	**44**	198	**45**	180	**46**	162	**47**	144	**48**	126	**49**	108
27½	7½	10	3	**51**	217	**53**	180	**54**	165	**55**	150	**56**	135	**57**	120	**58**	105	**59**	90
22½	7½	8	3	**61**	174	**63**	144	**64**	132	**65**	120	**66**	108	**67**	96	**68**	72	**69**	72
32	10	12	4	**71**	308	**73**	288	**74**	264	**75**	240	**76**	216	**77**	192	**78**	168	**79**	144
27½	10	10	4	**81**	290	**83**	240	**84**	220	**85**	200	**86**	180	**87**	160	**88**	440	**89**	120
22½	10	8	4	**91**	232	**93**	192	**94**	176	**95**	160	**96**	144	**97**	128	**98**	112	**99**	96
32	12½	12	5	**101**	435	**103**	360	**104**	330	**105**	300	**106**	270	**107**	240	**108**	210	**109**	180
27½	12½	10	5	**111**	362	**113**	300	**114**	275	**115**	250	**116**	225	**117**	200	**118**	175	**119**	150
22½	12½	8	5	**121**	290	**123**	240	**124**	220	**125**	200	**126**	180	**127**	160	**128**	140	**129**	120
32	15¼	12	6	**131**	522	**133**	432	**134**	396	**135**	360	**136**	324	**137**	288	**138**	252	**139**	216
27½	15¼	10	6	**141**	435	**143**	360	**144**	330	**145**	300	**146**	270	**147**	240	**148**	210	**149**	180
22½	15¼	8	6	**151**	348	**153**	288	**154**	264	**155**	240	**156**	216	**157**	192	**158**	168	**159**	144
32	17½	12	7	**161**	609	**163**	504	**164**	462	**165**	420	**166**	378	**167**	336	**168**	294	**169**	252
27½	17½	10	7	**171**	508	**173**	420	**174**	385	**175**	350	**176**	315	**177**	280	**178**	245	**179**	210
22½	17½	8	7	**181**	406	**183**	336	**184**	308	**185**	280	**186**	254	**187**	224	**188**	196	**189**	168
32	20¼	12	8	**191**	696	**193**	576	**194**	528	**195**	480	**196**	434	**197**	384	**198**	336	**199**	288
27½	20¼	10	8	**201**	580	**203**	480	**204**	440	**205**	400	**206**	360	**207**	320	**208**	280	**209**	240
22½	20¼	8	8	**211**	464	**213**	384	**214**	352	**215**	320	**216**	288	**217**	256	**218**	224	**219**	192

ORNAMENTAL BRACKET COIL.

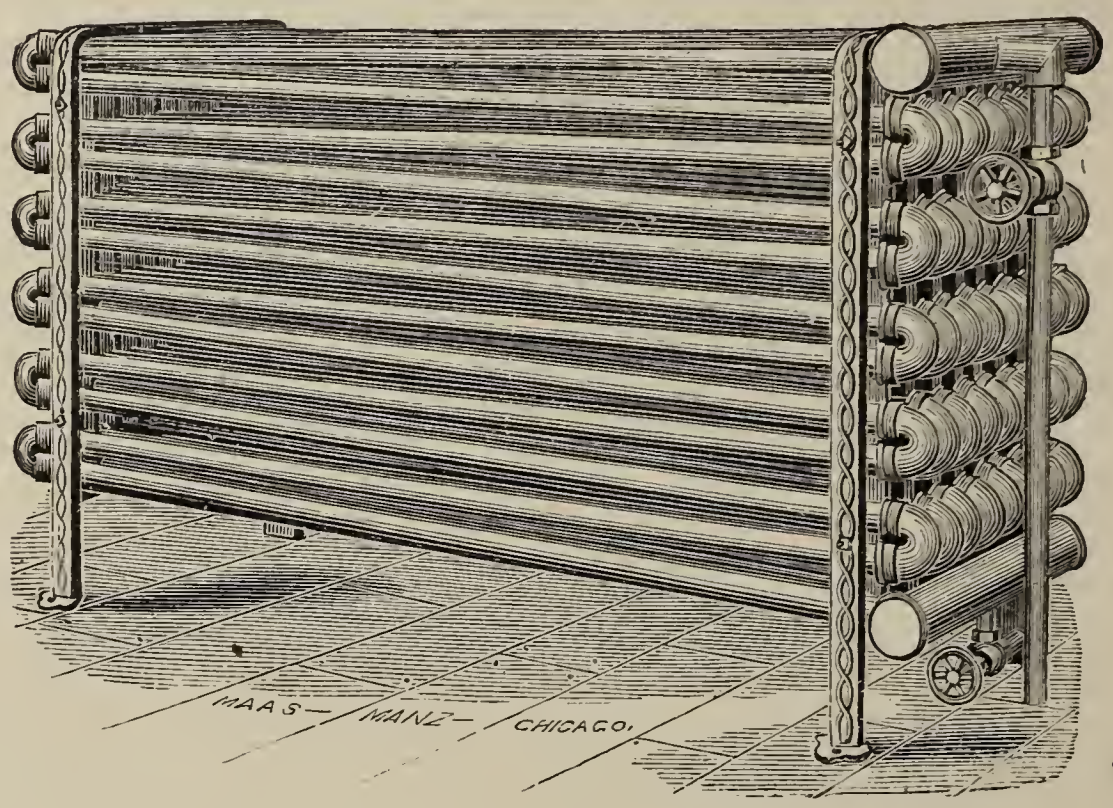
One and Two Tubes wide.



Length	8 ft.	7 ft.	6 ft.	5½ ft.	5 ft.	4½ ft.	4 ft.	3½ ft.	3 ft.	2½ ft.
12 Pipes High.										
2 do. Wide, per ft.	13½	14	14½	15	15½	16½	17½	18½	19½	21½
1 do. " "	15	15½	16	16½	17	18	19	20	21	23
10 Pipes High.										
2 do. Wide, per ft.	14½	15	15½	16	16½	17½	18½	19½	20½	22½
1 do. " "	16	16½	17	17½	18	19	20	21	22	24
8 Pipes High.										
2 do. Wide, per ft.	15½	16	16½	17	17½	18½	19½	20½	21½	23½
1 do. " "	17	17½	18	18½	19	20	21	22	23	25
6 Pipes High.										
2 do. Wide, per ft.	16½	17	17½	18	18½	19½	20½	21½	22½	24½
1 do. " "	18	18½	19	19½	20½	21	22	23	24	26

The above prices are based on Coils made of ***Whole Pipe without couplings.***

ORNAMENTAL COIL.



Length	8 ft.	7 ft.	6 ft.	5½ ft.	5 ft.	4½ ft.	4 ft.	3½ ft.	3 ft.	2½ ft.
12 Pipes high. Price per foot, cents	13	13½	14	14½	15	16	17	18	19	21
10 Pipes high. Price per foot, cents	14	14½	15	15½	16	17	18	19	20	22
8 Pipes high. Price per foot, cents	15	15½	16	16½	17	18	19	20	21	23

The above prices are based on Coils made of ***Whole Pipe without couplings.***

TABLE OF ONE-INCH PLAIN BOX COILS.

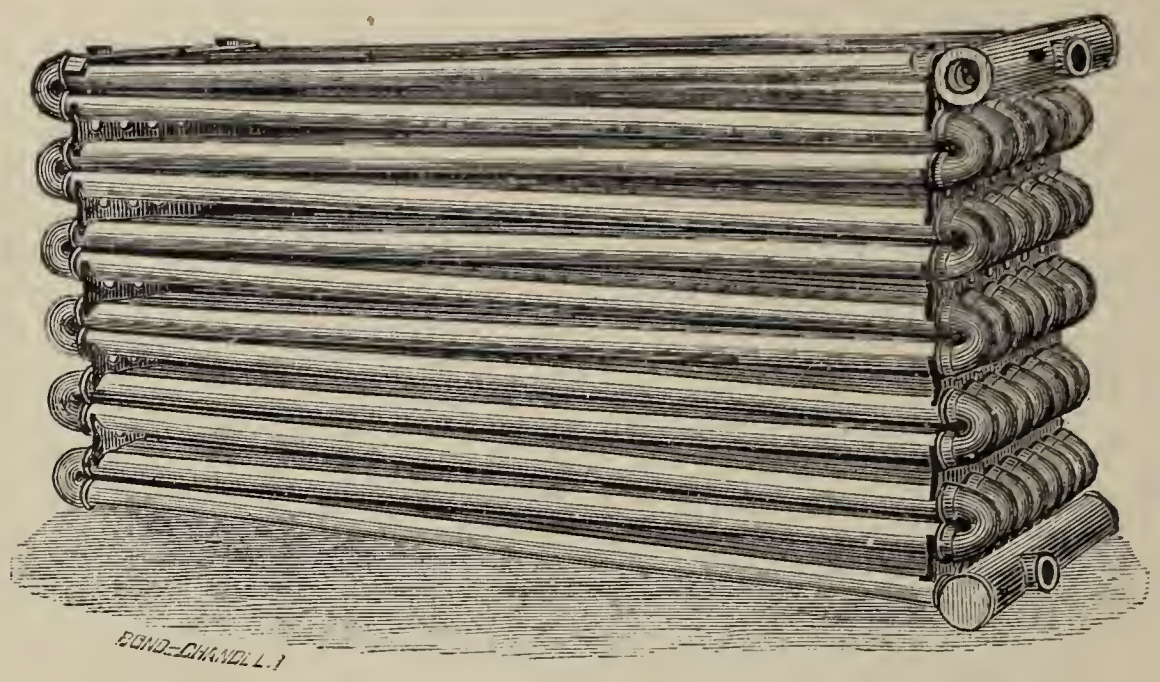
Extreme Height of Coils in inches.	Extreme Width of Coil.	No. of Pipes high.	No. of Pipes Wide.	8 ft. long.		7 ft. long.		6 ft. long.		5½ ft. long.		5 ft. long.		4½ ft. long.		4 ft. long.		3½ ft. long.		3 ft. long.		2½ ft. long.	
				Nos. of Coils.	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.	**Nos. of Coils.**	Feet of Pipe in Coils.
40	7½	16	3	**1**	384	**2**	336	**3**	288	**4**	264	**5**	240	**6**	216	**7**	192	**8**	168	**9**	144	**10**	120
40	**10**	16	4	**11**	512	**12**	448	**13**	384	**14**	352	**15**	320	**16**	288	**17**	256	**18**	224	**19**	192	**20**	160
40	12½	16	5	**21**	640	**22**	560	**23**	480	**24**	440	**25**	400	**26**	360	**27**	320	**28**	280	**29**	240	**30**	200
40	15¼	16	6	**31**	768	**32**	672	**33**	576	**34**	528	**35**	480	**36**	432	**37**	384	**38**	336	**39**	288	**40**	240
40	17½	16	7	**41**	896	**42**	784	**43**	672	**44**	616	**45**	560	**46**	504	**47**	448	**48**	392	**49**	336	**50**	280
40	20¼	16	8	**51**	1024	**52**	896	**53**	768	**54**	704	**55**	640	**56**	576	**57**	512	**58**	448	**59**	384	**60**	320
40	22½	16	9	**61**	1152	**62**	1008	**63**	864	**64**	792	**65**	720	**66**	648	**67**	576	**68**	504	**69**	432	**70**	360
40	25¼	16	10	**71**	1280	**72**	1120	**73**	960	**74**	880	**75**	800	**76**	720	**77**	640	**78**	560	**79**	480	**80**	400
40	28¼	16	11	**81**	1408	**82**	1232	**83**	1056	**84**	968	**85**	880	**86**	792	**87**	704	**88**	616	**89**	528	**90**	440
40	30½	16	12	**91**	1536	**92**	1344	**93**	1152	**94**	1056	**95**	960	**96**	864	**97**	768	**98**	672	**99**	576	**100**	480
40	**33**	16	13	**101**	1664	**102**	1456	**103**	1248	**104**	1144	**105**	1040	**106**	936	**107**	832	**108**	728	**109**	624	**110**	520
35	7½	14	3	**111**	336	**112**	294	**113**	252	**114**	231	**115**	210	**116**	189	**117**	168	**118**	147	**119**	126	**120**	105
35	**10**	14	4	**121**	448	**122**	392	**123**	336	**124**	308	**125**	280	**126**	252	**127**	224	**128**	196	**129**	168	**130**	140
35	12½	14	5	**131**	560	**132**	490	**133**	420	**134**	385	**135**	350	**136**	315	**137**	280	**138**	245	**139**	210	**140**	175
35	15¼	14	6	**141**	672	**142**	588	**143**	504	**144**	462	**145**	420	**146**	378	**147**	336	**148**	294	**149**	252	**150**	210
35	17½	14	7	**151**	784	**152**	686	**153**	588	**154**	539	**155**	490	**156**	441	**157**	392	**158**	343	**159**	294	**160**	245

TABLE OF ONE-INCH PLAIN BOX COILS.—Continued.

Extreme Height of Coils in inches.	Extreme Width of Coil.	No. of Pipes high.	No. of Pipes Wide.	8 ft. long.		7 ft. long.		6 ft. long.		5½ ft. long.		5 ft. long.		4½ ft. long.		4 ft. long.		3½ ft. long.		3 ft. long.		2½ ft. long.	
				Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.	Nos. of Coils.	Feet of Pipe in Coils.
35	20¼	14	8	161	896	162	784	163	672	164	616	165	560	166	504	167	448	168	392	169	336	170	280
35	22½	14	9	171	1008	172	882	173	756	174	693	175	630	176	567	177	504	178	441	179	378	180	315
35	25¼	14	10	181	1120	182	980	183	840	184	770	185	700	186	630	187	560	188	490	189	420	190	350
35	28¼	14	11	191	1232	192	1078	193	924	194	847	195	770	196	693	197	616	198	539	199	462	200	385
35	30½	14	12	201	1344	202	1176	203	1008	204	924	205	840	206	756	207	672	208	588	209	504	210	420
35	33	14	13	211	1456	212	1274	213	1092	214	1001	215	910	216	819	217	728	218	637	219	546	220	455
30	7½	12	3	221	288	222	252	223	216	224	198	225	180	226	162	227	144	228	126	229	108	230	90
30	10	12	4	231	384	232	336	233	288	234	264	235	240	236	216	237	192	238	168	239	144	240	120
30	12½	12	5	241	480	242	420	243	360	244	330	245	300	246	270	247	240	248	210	249	180	250	150
30	15¼	12	6	251	576	252	504	253	432	254	396	255	360	256	324	257	288	258	252	259	216	260	180
30	17½	12	7	261	672	262	588	263	504	264	462	265	420	266	378	267	336	268	294	269	252	270	210
30	20¼	12	8	271	768	272	672	273	576	274	528	275	480	276	432	277	384	278	336	279	288	280	240
30	22½	12	9	281	864	282	756	283	648	284	594	285	540	286	486	287	432	288	378	289	324	290	270
30	25¼	12	10	291	960	292	840	293	720	294	660	295	600	296	550	297	480	298	420	299	360	300	300
30	28¼	12	11	301	1056	302	924	303	792	304	726	305	660	306	594	307	528	308	462	309	396	310	330

30	30½	12	12	311	1152	312	1008	313	864	314	792	315	720	316	648	317	576	318	504	319	432	320	360
30	33	12	13	3 1	1248	322	1092	323	936	324	858	325	780	326	702	327	624	328	546	329	468	330	390
25	7½	10	3	331	240	332	210	333	180	334	165	335	150	336	135	337	120	338	105	339	90	340	75
25	10	10	4	341	320	342	280	343	240	344	220	345	200	346	180	347	160	348	140	349	120	350	100
25	12½	10	5	351	400	352	350	353	300	354	275	355	250	356	225	357	200	358	175	359	150	360	125
25	15¼	10	6	361	480	362	420	363	360	364	330	365	300	366	270	367	240	368	210	369	180	370	150
25	17½	10	7	371	560	372	490	373	420	374	385	375	350	376	315	377	280	378	245	379	210	380	175
25	20¼	10	8	381	640	382	560	383	480	384	440	385	400	386	360	387	320	388	280	389	240	390	200
25	22½	10	9	391	720	392	630	393	540	394	495	395	450	396	405	397	360	398	315	399	270	400	225
25	25¼	10	10	401	800	402	700	403	600	404	550	405	500	406	450	407	400	408	350	409	300	410	250
25	28¼	10	11	411	880	412	770	413	660	414	605	415	550	416	495	417	440	418	385	419	330	420	275
25	30½	10	12	421	960	422	840	423	720	424	660	425	600	426	540	427	480	428	420	429	360	430	300
25	33	10	13	31	1040	432	910	433	780	434	715	435	650	436	585	437	520	438	455	439	390	440	325
20	7½	8	3	441	192	442	168	443	144	444	132	445	120	446	108	447	96	448	84	449	72	450	60
20	10	8	4	451	256	452	224	453	192	454	176	455	160	456	144	457	128	458	112	459	96	460	80
20	12½	8	5	461	320	462	280	463	240	464	220	465	200	466	180	467	160	468	140	469	120	470	100
20	15¼	8	6	471	384	472	336	473	288	474	264	475	240	476	216	477	192	478	168	479	144	480	120
20	17½	8	7	481	448	482	392	483	336	484	308	485	280	486	252	487	224	488	196	489	168	490	140
20	20¼	8	8	491	512	492	448	493	384	494	352	495	320	496	288	497	256	498	224	499	192	500	160
20	22½	8	9	501	576	502	504	503	432	504	396	505	360	506	324	507	288	508	252	509	216	510	180
20	25¼	8	10	511	640	512	560	513	480	514	440	515	400	516	360	517	320	518	280	519	240	520	200
20	28¼	8	11	521	704	522	616	523	528	524	484	525	440	526	396	527	352	528	308	529	264	530	220
20	30½	8	12	531	768	532	672	533	576	534	528	535	480	536	432	537	384	538	336	539	288	540	240
20	33	8	13	541	832	542	728	543	624	544	572	545	520	546	468	547	416	548	364	549	312	550	260

PLAIN BOX COIL.



Length	8 ft.	7 ft.	6 ft.	5½ ft.	5 ft.	4½ ft.	4 ft.	3½ ft.	3 ft.	2½ ft.
12 Pipes high Price per foot, cts.	12	12½	13	13½	14	15	16	17	18	20
10 Pipes high Price per foot, cts.	12½	13	13½	14	14½	15½	16½	17½	18½	20½
8 Pipes high. Price per foot, cts.	13	13½	14	14½	15	16	17	18	19	21

COIL STANDS, SLATS, ETC.

Ornamental Coil Stand (Light Pattern)	Cents per Pound.
" " " (Heavy ")	" " "
" " " for Wall Coils	" " "
Slats, for Plain and Ornamental Coils	" " "
Malleable Straps, for Plain Box Coils	" " "

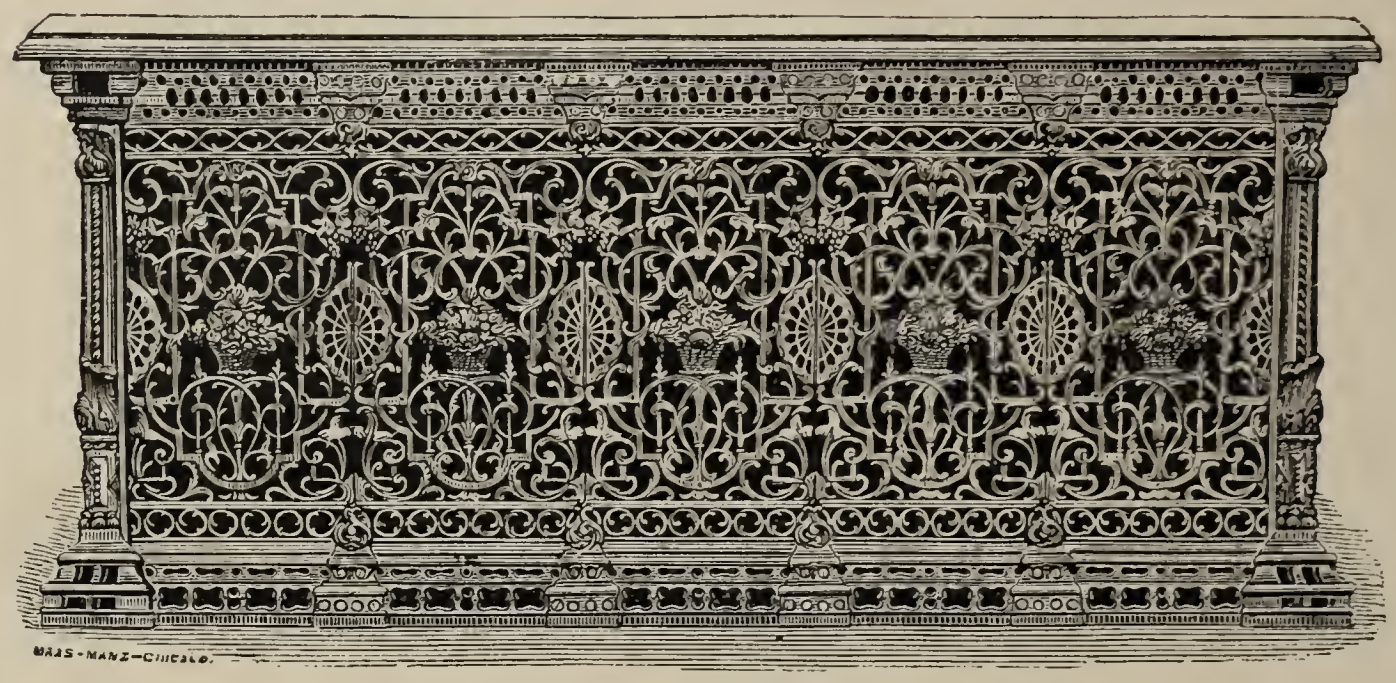
SCREENS.

Pattern No. 1 we keep in Stock, Bronzed, and can fill orders on short notice. We make a ***Back Corner Piece*** for this Screen, which corresponds with the Front Corner Piece, but ***has one angle cut off.*** It is used to give a ***handsome finish*** to the end, when the screen is placed ***next the wall.*** We commend it for this purpose, as it gives a ***more satisfactory*** and ***substantial finish.***

In ordering Screens, state how ***small*** they can be made on the ***inside.*** If you are ***limited as to size*** on the ***outside,*** give the size also of the ***Marble Top*** or the size of the outside of Screen at the top or base, and state for how many sides of the Coil it is required.

ORNAMENTAL SCREEN, WITH MARBLE TOP.

For Inclosing Coils.



Pattern No. 1.

Finished in Bronze, Chocolate, or Gold, price per foot (inside measure) ..... $2 50.

Finished Plain (without bronze or paint), price per foot (inside measure) 1 75

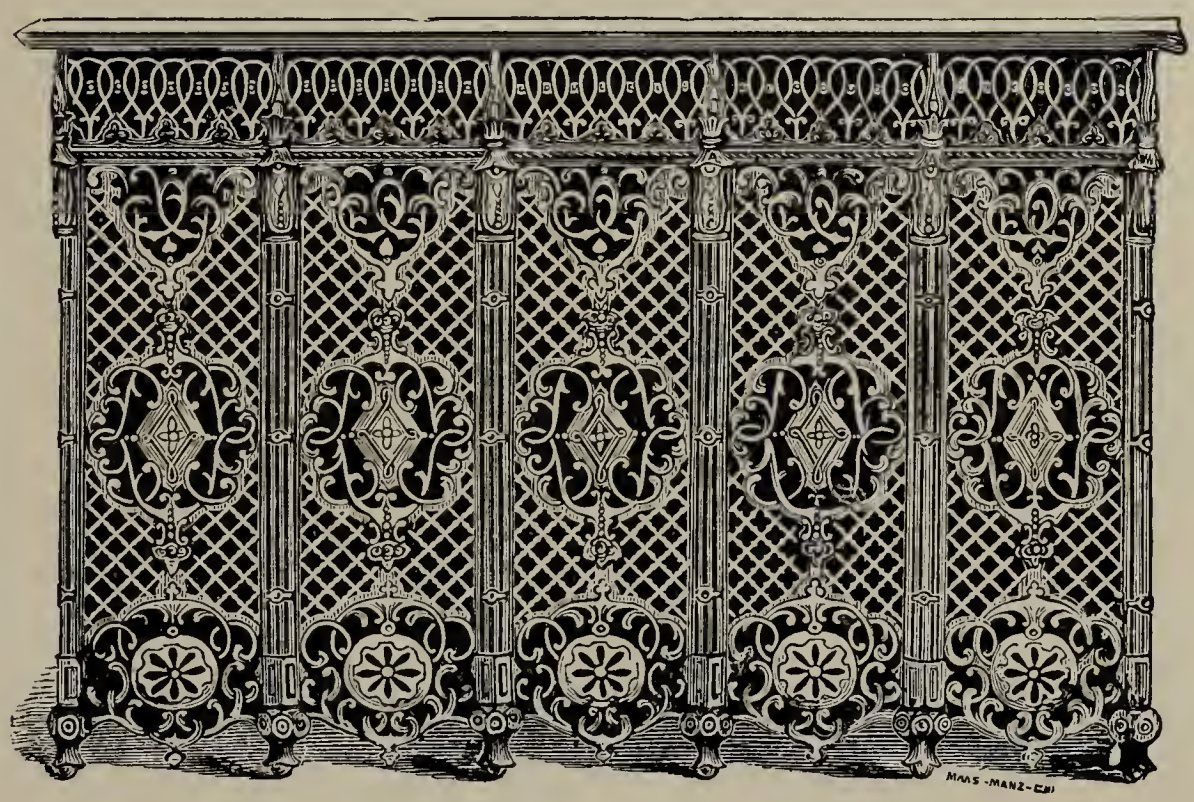
Marble Slab not included in this price.

Width of Panels, $4\frac{1}{2}$ in., 7 in., 9 in., 11 in., $12\frac{7}{8}$ in., and ..... $14\frac{3}{4}$ inches.
" " Front Corner Piece ..... 2 "
" " Back " " at bottom ..... 3 "
" " " " " at top ..... 4 "
Height under Marble ..... 2 feet 8 "

Painted and Ornamented in any style, to order.

ORNAMENTAL SCREEN, WITH MARBLE TOP,

For Inclosing Coils.



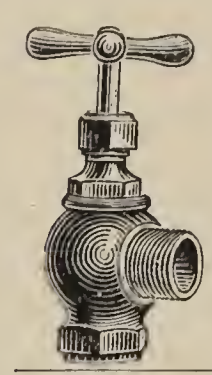
Pattern No. 2

Finished in Bronze or Chocolate, or Grained, price per foot (inside measure)	$4 50
Finished in White, ornamented with Gold, price per foot (inside measure)	5 00
Finished Plain (without bronze or paint), price per foot (inside measure)	3 00

Marble Slab not included in this price.

Width of Panels	$10\frac{5}{8}$ inches.
Height under Marble	3 feet.

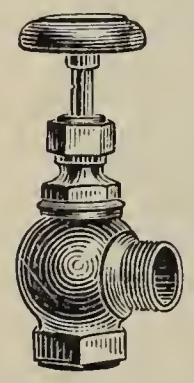
Painted and Ornamental in any style, to order.



RADIATOR VALVES.

Tee Handle.

Size.....Inches.	½ x ½	¾ x ¾	1 x 1	1 ¼ x 1¼	1½ x 1½	2 x 2
Price, Nickel-Plated.....	1 60	1 90	2 50	3 15	4 40	6 50
Price, not Plated.....	1 40	1 70	2 30	2 95	4 10	6 20



RADIATOR VALVES.

Wood Handle.

Size.....Inches.	½ x ½	¾ x ¾	1 x 1	1¼ x 1¼	1½ x 1½	2 x 2
Price, Nickel-Plated.....	1 80	2 10	2 70	3 35	4 60	6 70
Price, not Plated.....	1 60	1 90	2 50	3 15	4 40	6 50

*RADIATOR VALVES.

Tee Handle.

Size.....Inches.	½ x ¾	¾ x 1	1 x 1¼	1¼ x 1½	1½ x 2
Price, Nickel-Plated.....	1 75	2 15	2 80	3 50	4 70
Price, not Plated.....	1 55	1 95	2 60	3 25	4 40

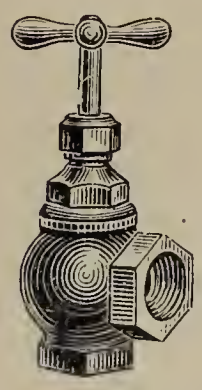
*RADIATOR VALVES.

Wood Handle.

Size.....Inches	½ x ¾	¾ x 1	1 x 1¼	1¼ x 1½	1½ x 2
Price, Nickel-Plated.....	1 95	2 35	3 00	3 80	5 00
Price, not Plated.....	1 75	2 15	2 80	3 50	4 70

*The largest size is a male thread. All Radiator Valves are tapped left hand in female end, which is the lower part of valve.

NOTE.—Valves with inlet and outlet, same size, will always be sent if not otherwise ordered.



ANGLE VALVES.

Tee Handle.

Size ..... inches	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price, Nickel Plated	1 60	1 90	2 50	3 15	4 40	6 50
Price, not Plated	1 40	1 70	2 30	2 95	4 10	6 20

Globe Valves with Tee Handle same price as above.

RADIATOR AIR VALVES.

Price $0 25

EXPANSION AIR VALVES.

Brass Tube.

Price $1 90

EXPANSION STEAM TRAP.

Five Feet Long.

Price $6 50

STEAM PUMPS.

The many hundreds of Steam Pumps made by us during the past twenty years, the universal satisfaction they have given, and the greatly increased demand for them, are such good evidences of their merit, that we have been induced to make a specialty of these Machines, and to that end we have increased their variety and enlarged our facilities for manufacturing them. No labor or expense has been spared to make them in every respect adaptable to all classes of work. All the different parts of these Pumps are made to a standard and kept in stock, from which duplicates can at any time be furnished.

We have great pleasure, therefore, in calling attention to the following pages, and solicit your orders, which will have our usual prompt attention.

CENTENNIAL AWARD.

International Exhibition,

1876.

CERTIFICATE OF AWARD.

Crane Brothers Manfg. Co.

CHICAGO, ILL.

Elevators, Pumps, Valves and Cocks.

No. 351. Group XX.

United States Centennial Commission,

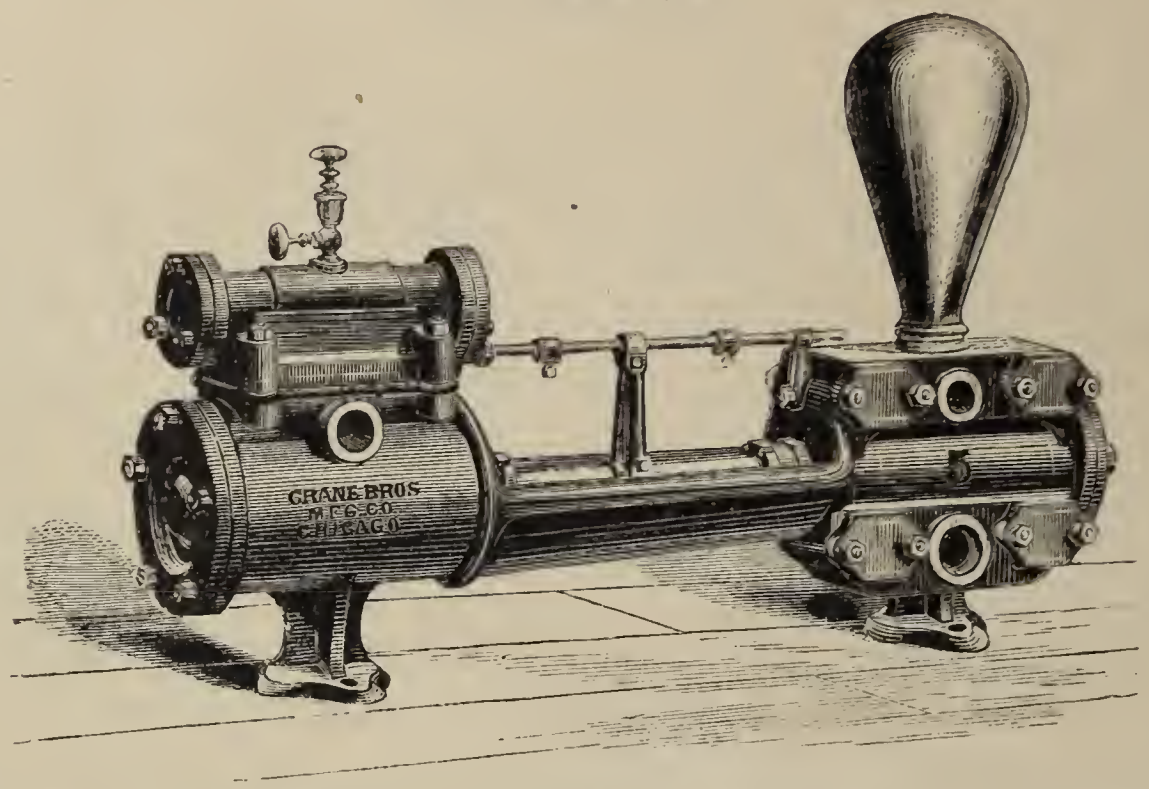
In accordance with the Act of Congress,

Philadelphia, Sept. 27, 1876.

JOHN L. CAMPBELL, Secretary. A. T. GOSHORN, Director General. JOS. R. HAWLEY, President.

AUXILIARY VALVE STEAM PUMP,

For General Use.



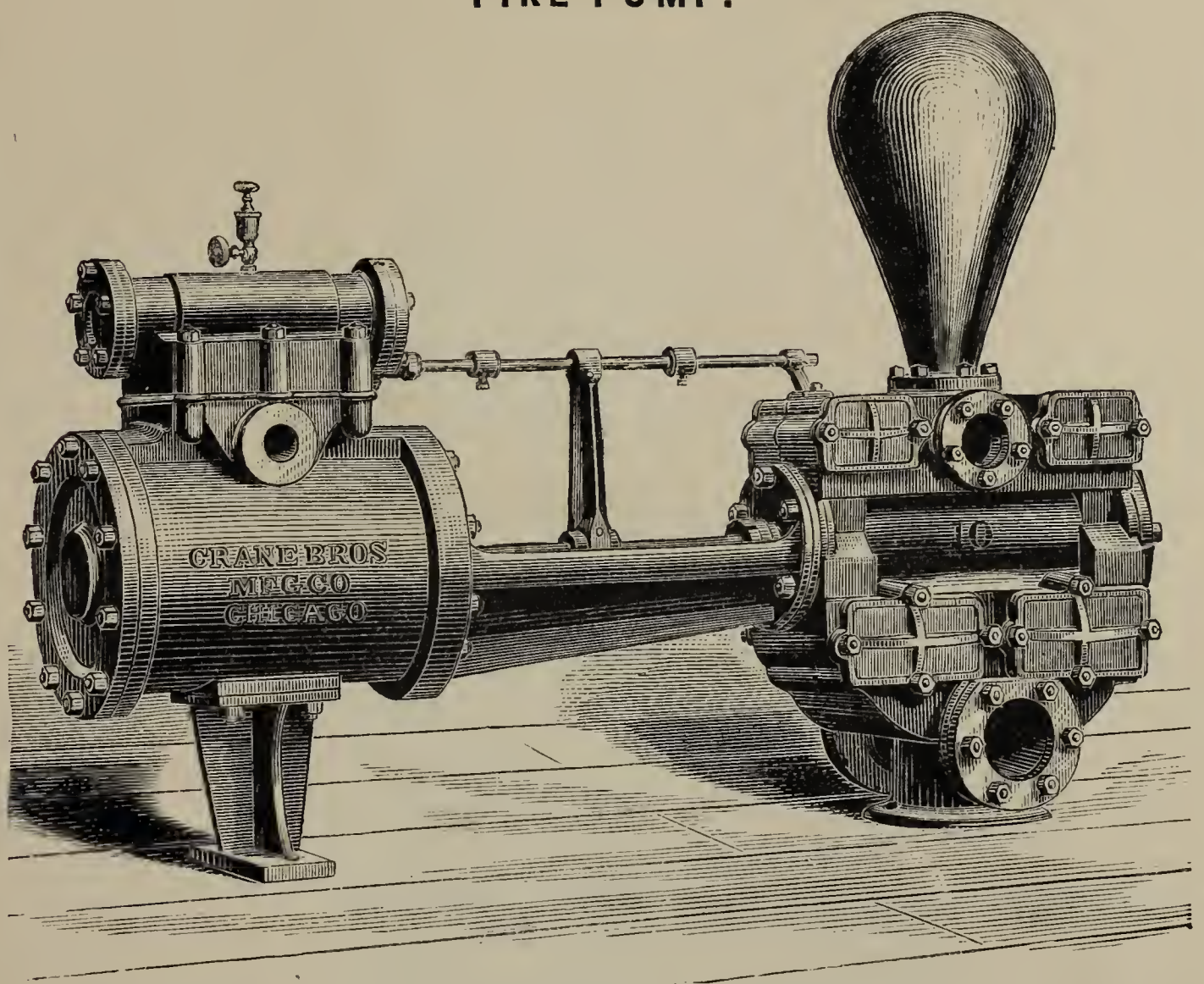
The above cut represents our new Auxiliary Valve Steam Pump, invented after several years of experience in the manufacture and use of Steam Pumps, during which time many experiments have been made to determine the proper arrangement and construction of the different parts to produce an article that would be adapted to all the requirements of an Auxiliary Valve *Steam* Pump, and we are fully convinced that in it we have combined *four* important features, viz.:

Simplicity, Durability, Positive Action, and High Speed.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons per Stroke.	Strokes per Minute Capable of Running.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Price.
1	$3\frac{1}{2}$	2	4	.06	1 to 350	$\frac{1}{2}$	$\frac{3}{4}$	Two $1\frac{1}{4}$	Two 1	$125 00
3	5	3	7	.21	1 to 300	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{4}$	200 00
5	7	4	10	.54	1 to 300	1	$1\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{2}$	350 00
6	8	5	10	.85	1 to 275	$1\frac{1}{4}$	2	$3\frac{1}{2}$	$2\frac{1}{2}$	375 00
7	10	6	12	1.47	1 to 250	$1\frac{1}{2}$	$2\frac{1}{2}$	4	3	450 00
8	12	7	15	2.50	1 to 250	2	3	5	3	525 00
9	14	8	15	3.26	1 to 250	$2\frac{1}{2}$	$3\frac{1}{2}$	6	4	600 00
10	16	9	18	4.96	1 to 225	$2\frac{1}{2}$	4	7	5	800 00
12	20	14	24	15.99	1 to 150	3	$4\frac{1}{2}$	10	7	To order.
14	24	18	24	26.43	1 to 150	$3\frac{1}{2}$	5	12	10	

We warrant every Pump. In ordering Pumps, please answer questions on Page 123.

FIRE PUMP.



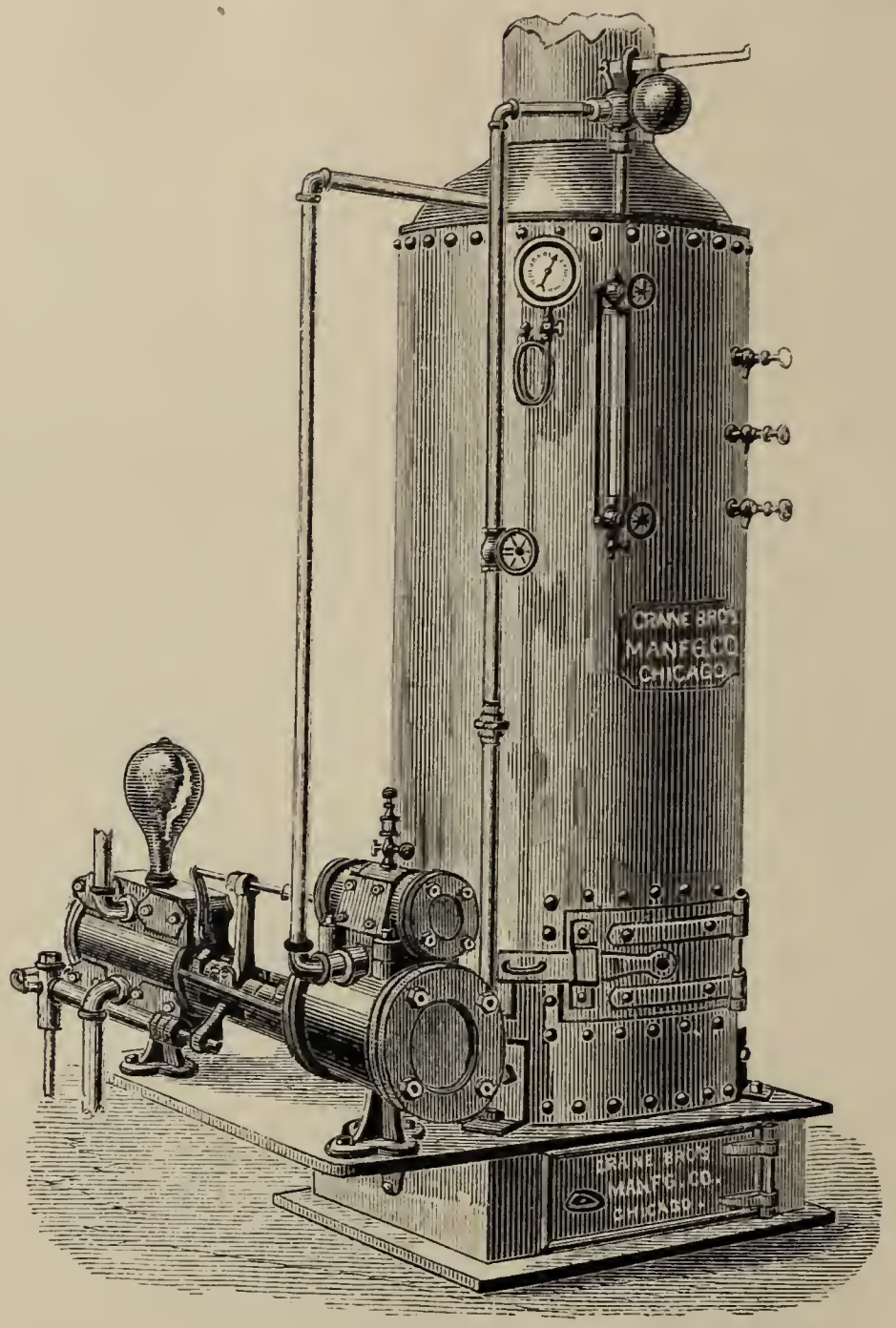
These Pumps are constructed for fire purposes and extra heavy duty, as will be seen by the relative proportion of steam and water cylinders, and are guaranteed to work as well as any other pump in the market.

Size.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons Per Stroke.	Strokes Per Minute Capable of Running.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Price.
A A	10	5	12	1.02	1 to 300	1½	2½	Two 4	Two 3	$425 00
B B	12	6	12	1.47	1 to 300	2	3	Two 5	Two 3	500 00
C C	14	7	15	2.50	1 to 250	2½	3½	Two 6	Two 3½	600 00
D D	16	8	18	3.92	1 to 250	2½	4	Two 7	Two 4	750 00
E E	20	10	24	8.16	1 to 200	3	4½	Two 8	Two 6	To Order.
F F	24	12	24	11.75	1 to 175	3½	5	Two 10	Two 8	To Order.

We warrant every Pump. In ordering Pumps, please answer questions on Page 123.

COMBINED PUMP AND BOILER.

With Boiler Feeder, Fixtures Complete, ready for Use.

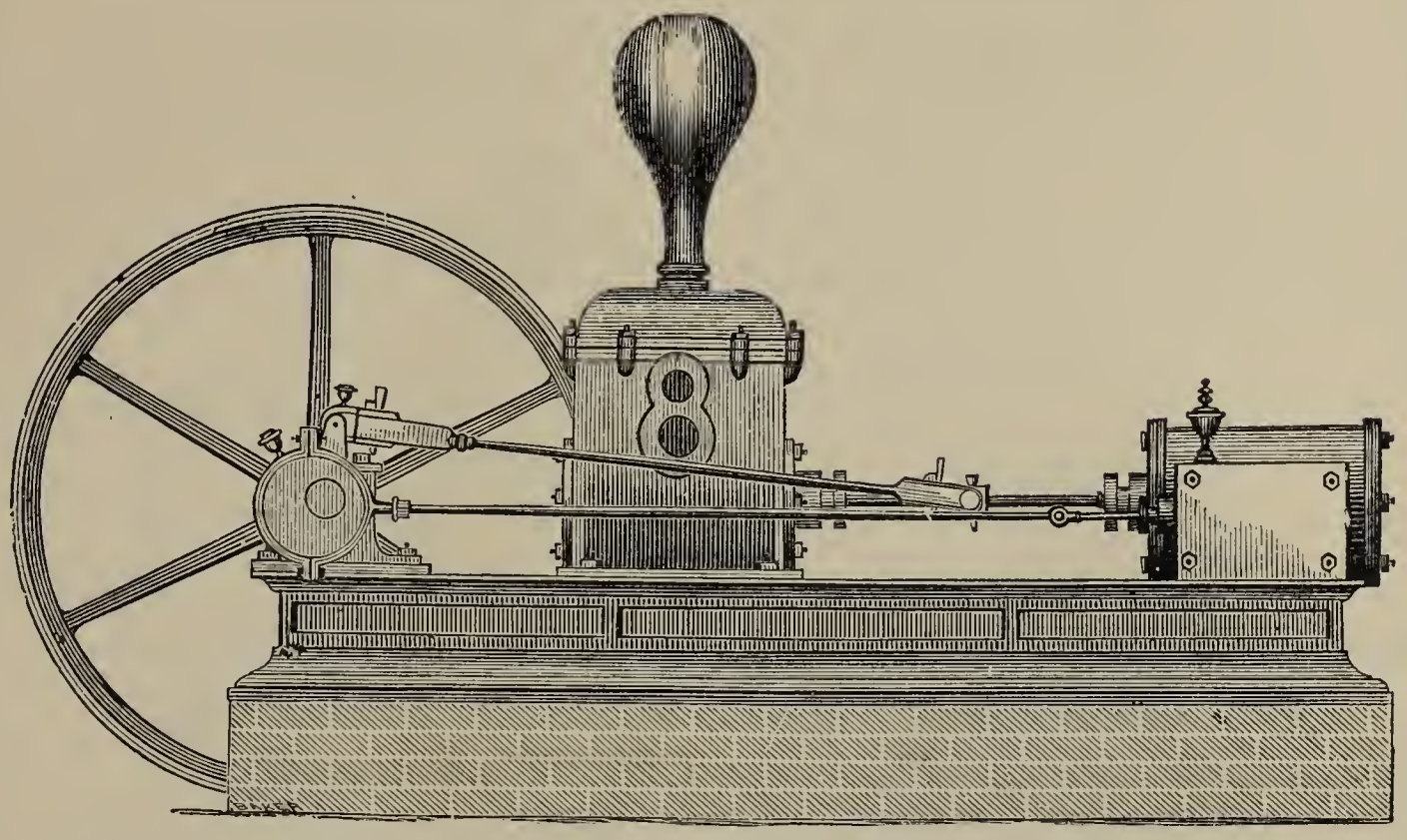


The above combination of a Steam Pump, Boiler, etc., is especially adapted for railroad water stations, hotels, public and private institutions, etc., etc., and can be used as a fire engine in case of fire. We manufacture at present the following sizes. Other sizes made to order:

	Dimensions of Steam Pump.									Dimensions of Boiler.						
	Steam Cylinder.	Water Cylinder.	Stroke.	Gallons per Stroke.	Strokes per Minute Capable of Running.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Diameter of Shell.	Height of Shell.	No. of Tubes.	Diameter of Tubes.	Length of Tubes.	Size of Fire Box.	Price Complete.
A	3½	3½	5	.20	1 to 350	1	¾	1½	1¼	24 in.	60 in.	25	2 in.	36 in.	18x24	$425 00
B	5	5	7	.59	1 " 300	1½	¾	2¼	2	24 "	60 "	25	2 "	36 "	18x24	525 00
C	7	7	10	1.66	1 " 250	1	1½	4	3	30 "	72 "	37	2 "	48 "	21x24	700 00

We warrant every Pump. In ordering Pumps, please answer questions on page 123.

DOUBLE-ACTING BALANCE-WHEEL STEAM PUMP.



Designed for all general work. Well adapted for fire purposes, but for a Fire Pump, we more strongly recommend that shown on page 117, or our Duplex Fire Engine Pump, page 120.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons per Stroke.	Revolutions per Minute Capable of Running (Two Strokes per Revolution).	Maximum Gallons Per Minute.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Length over Fly-Wheel.	PRICES. Plain Finish.	PRICES. Extra Finish.
2	4	2	5	.07	2 to 300	42	¾	1¼	1¼	1	4 ft. 10 in	$200 00	$225 00
3	5	3	6	.18	2 " 300	108	1	1½	2	1½	5 " 9 "	275 00	315 00
5	7	4	7	.38	2 " 300	228	1¼	2	2½	2	6 " 5 "	375 00	425 00
7	10	6	8½	1.04	2 " 275	572	1½	2½	4	2½	.....	500 00	550 00
7½	10	5	8½	.72	2 " 275	396	1½	2½	4	2½	.....	500 00	550 00
8	12	7	10	1.66	2 " 250	830	2	3	5	3	9 ft. 6 in.	650 00	725 00
9	12	6	10	1.22	2 " 250	610	2	3	5	3	9 " 6 "	650 00	725 00

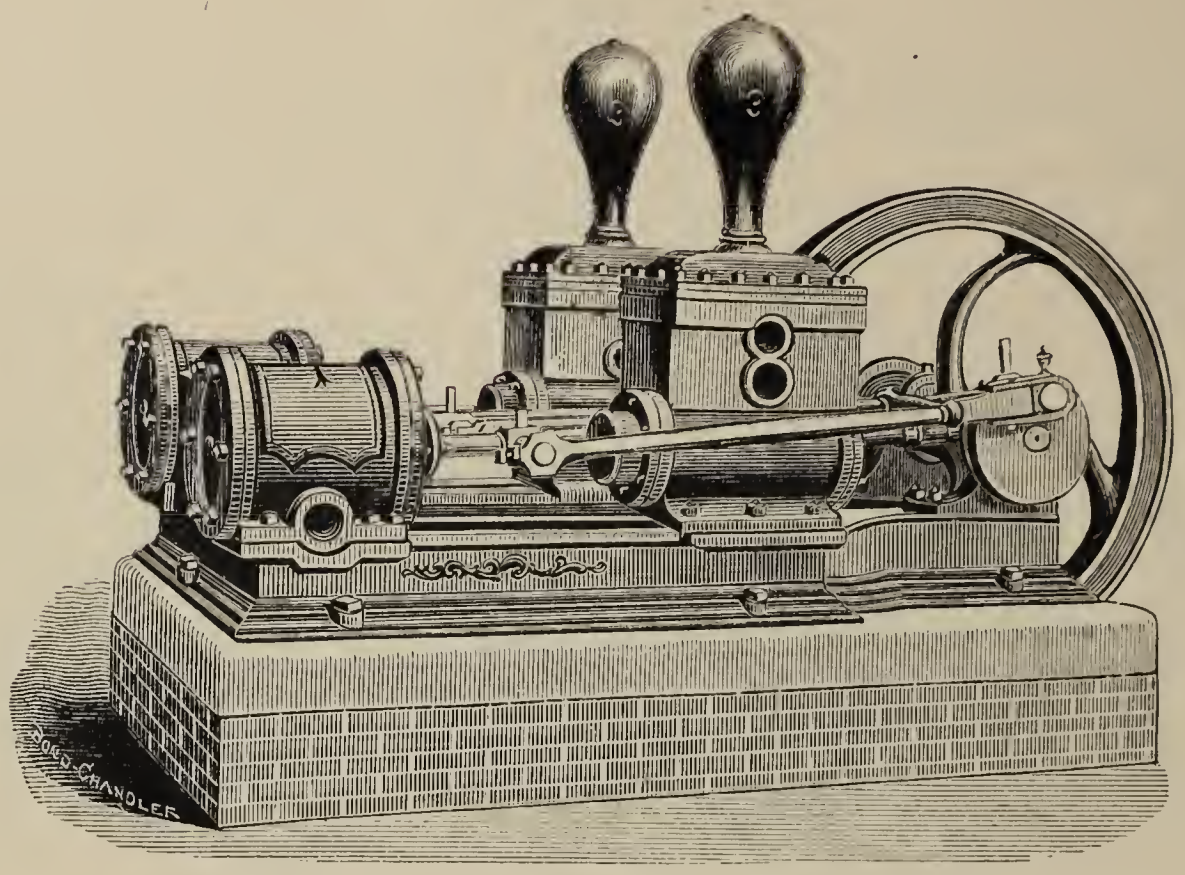
COMBINED ENGINE AND PUMP.

This is similar in style to our Balance-Wheel Pump; has slides, disconnected water piston and governor, and is recommended where a small amount of power is wanted in addition to that required for pumping, and is speeded more as an engine than a pump.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons per Stroke.	Revolutions per Minute.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Length over Fly-Wheel.	PRICES. Plain Finish.	PRICES. Extra Finish.
2	4	2	5	.07	50 to 250	¾	1¼	1¼	1	4 ft. 10 in.	$260 00	$300 00
3	5	3	6	.18	50 " 250	1	1½	2	1½	5 " 9 "	355 00	400 00
5	7	4	7	.38	50 " 250	1¼	2	2½	2	6 " 5 "	470 00	525 00

We Warrant Every Pump. In Ordering Pumps, please answer questions on page 123.

DUPLEX FIRE ENGINE PUMP.



Our Duplex Fire Engine Pump is specially adapted for fire purposes, and for raising water to a great height. It throws a perfectly steady and more powerful stream, WITHOUT JAR IN THE HOSE, than can be obtained by the use of a single pump.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons per Stroke.	Revolutions per Minute Capable of Running. (Four strokes per Revolution.)	Maximum Gallons per Minute.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Length over Fly-Wheel.	PRICES.	
												Plain Finish.	Extra Finish.
5	7	4	7	.38	1 to 300	456	1½	2½	4	3	6 ft. 9 in.	$750 00	$830 00
7	10	6	8½	1.04	1 to 275	1,144	2½	3½	6	4	8 ft.	1,000 00	1,100 00
7½	10	5	8½	.72	1 to 275	792	2½	3½	6	3½	8 ft.	1,000 00	1,100 00
8	12	7	10	1.66	1 to 250	1,660	3	4	7	5	9 ft. 6 in.	1,300 00	1,450 00
8½	12	6	10	1.22	1 to 250	1,220	3	4	7	4	9 ft 6 in.	1,300 00	1,450 00

We warrant every pump. In ordering pumps, please answer questions on page 123.

LIGHT SERVICE OR TANK PUMP.

(See Cut on Page 116.)

Size.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons Per Stroke.	Strokes Per Minute Capable of Running.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Price.
A	3½	3½	5	.20	1 to 350	½	¾	Two 1½	Two 1¼	$175 00
B	5	5	7	.59	1 to 300	½	¾	" 2½	" 2	300 00
C	7	7	10	1.66	1 to 250	1	1½	" 1½	" 3	375 00

LOW-PRESSURE AUXILIARY VALVE STEAM PUMP.

(See Cut on Page 116.)

These Pumps are used for pumping with a low-steam pressure, such as is generated by low-pressure steam warming apparatus in public and private buildings, and at a pressure of ten pounds steam to square inch will elevate water sixty feet high to a tank.

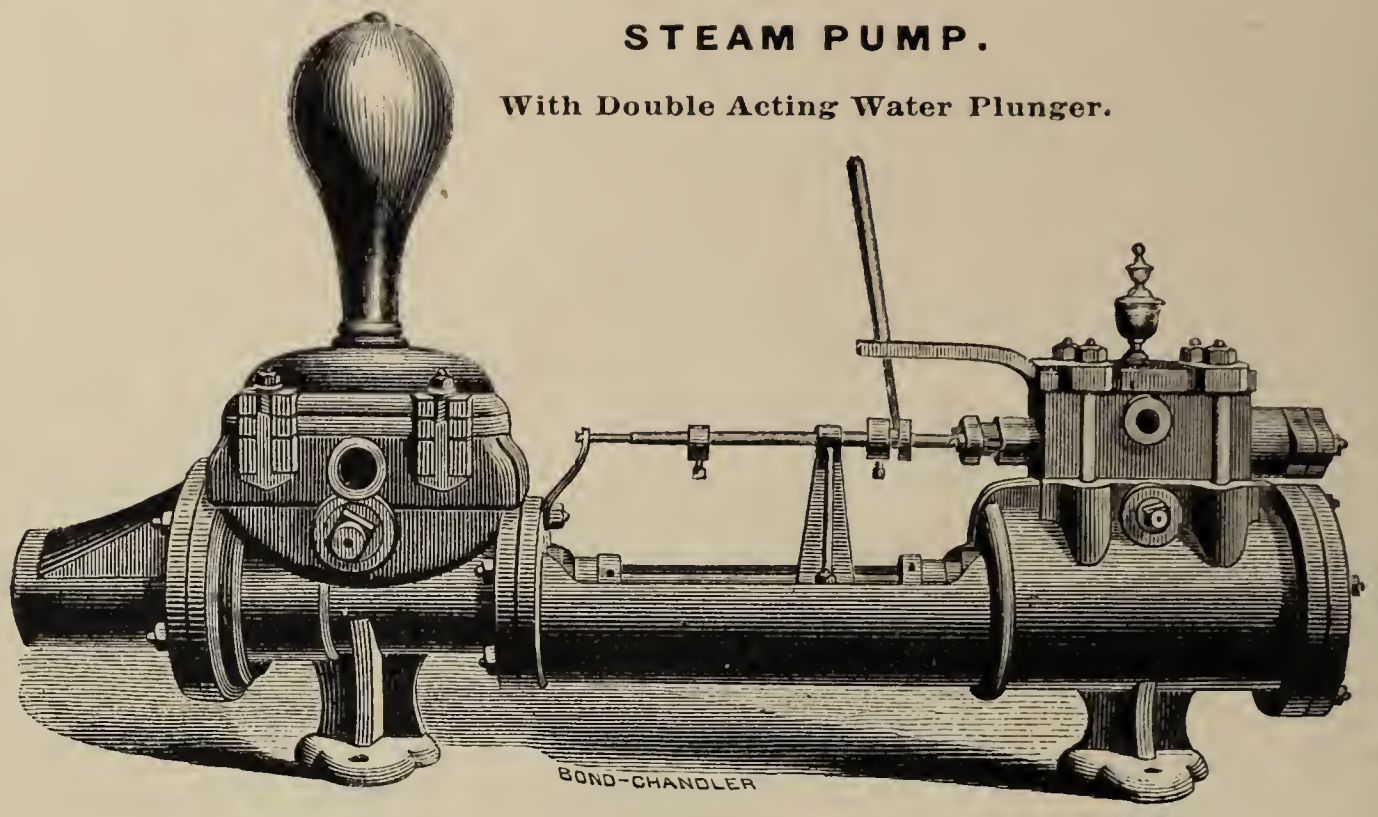
If it is desirable to have a pump that will elevate water to a higher point with ten pounds of steam, or to the same height with a less pressure, we can furnish it by reducing the size of the water cylinder.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons Per Stroke.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	Price.
3	5	2	7	.09	¾	1¼	Two 1½	Two 1	$160 00
5	7	3	10	.31	1	1½	" 2	" 1½	275 00

We warrant every Pump. In ordering Pumps please answer questions on Page 123.

STEAM PUMP.

With Double Acting Water Plunger.



This is an old and well-established Pump, and stands high with engineers. It is well adapted for supplying boilers and other work where the lift is light, though in many cases it does good service when under a heavy lift. The rings and piston (as well as other parts) of the pump are made to a *standard, and kept on hand.* They can be easily adjusted, and used while the old ones are undergoing repair, thus saving delay. It has also the DOUBLE-ACTING WATER PLUNGER, which insures a greater amount of wear, and is especially adapted for pumping water containing sand, dirt, etc.

No.	Diameter Steam Cylinder.	Diameter Water Cylinder.	Length of Stroke.	Gallons per Stroke.	Strokes per Minute Capable of Running.	Steam Pipe.	Exhaust Pipe.	Suction Pipe.	Discharge Pipe.	PRICE.
3	5	3	7	.21	1 to 300	½	1	Two 1½	Two 1¼	$175 00
5	7	4	10	.54	1 to 300	1	1½	" 2	" 1½	300 00

BREWERS' STEAM AIR PUMP.

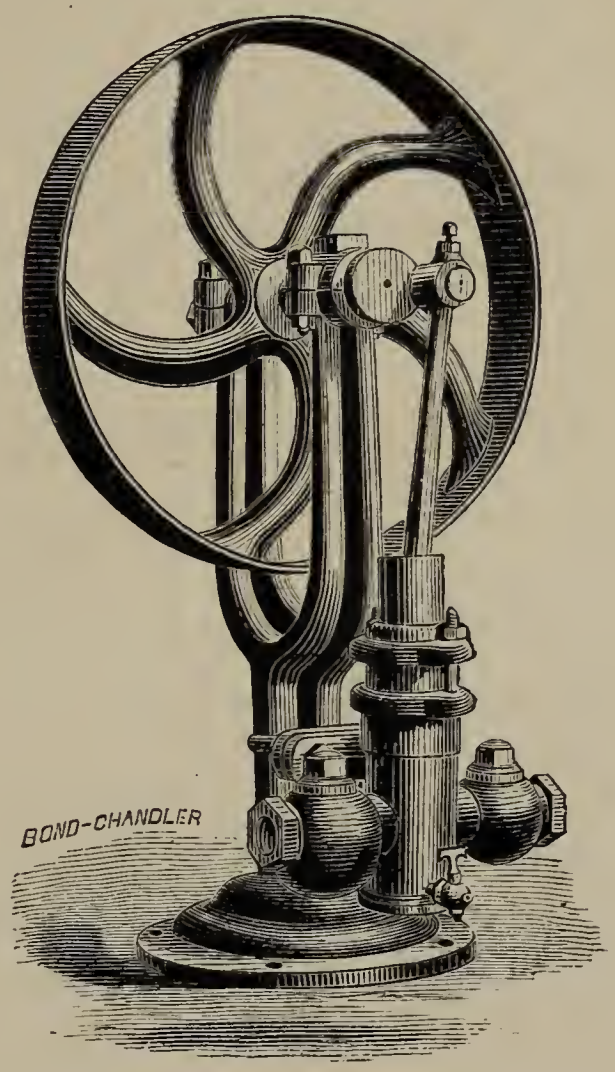
These are similar in appearance to our Balance-Wheel Pump. They are especially adapted for transferring beer from any part of the cellar to the barreling rooms; are very popular with those who use them, and are considered indispensable to all first-class breweries.

Diameter Steam Cylinder.	Diameter Air Cylinder.	Length of Stroke.	Steam Pipe.	Exhaust Pipe.	PRICES.	
					Plain Finish.	Extra Finish.
4 in.	6 in.	12 in.	¾ in.	1¼ in.	$325 00	$350 00

We warrant every Pump. In ordering Pumps, please answer questions on Page 123.

BOILER PUMP.

Two and Three-Inch Plunger.



Boiler Pump, 2-inch Plunger, 3-inch stroke.....Price, $35 00
" " 3 " " 6 " " ..... " 70 00

In ordering Pumps, please answer the following questions:

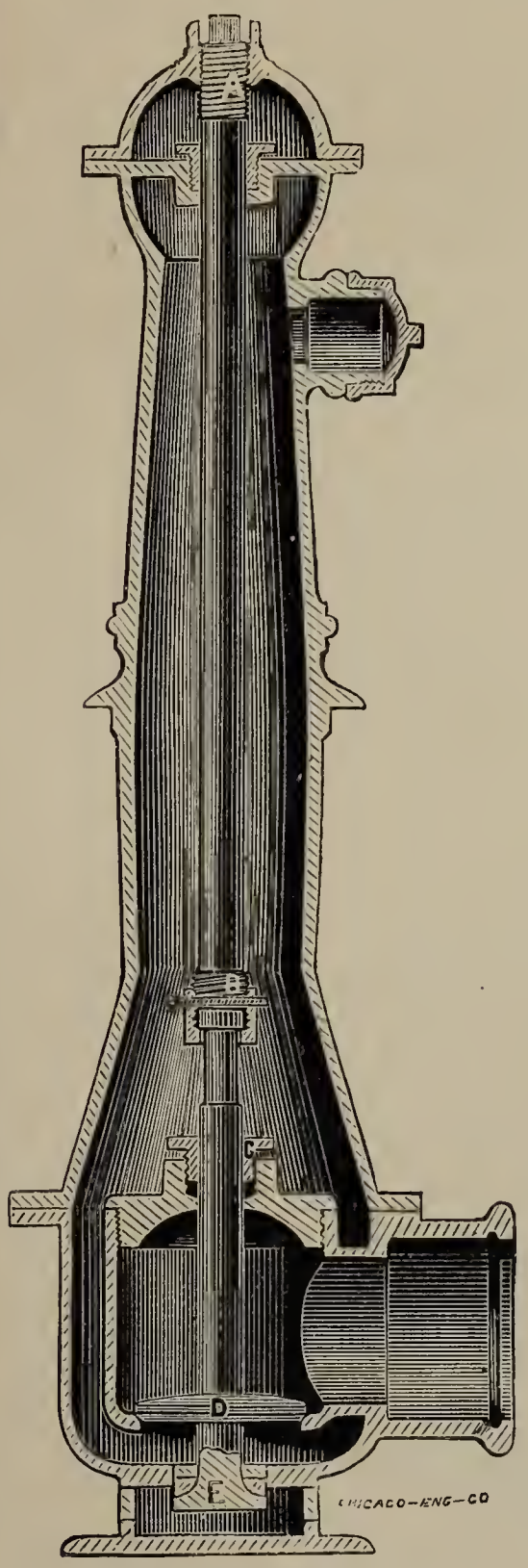
1. Whether for hot or cold water?
2. For high or low pressure?
3. What is the steam pressure used?
4. To what height is water to be lifted by suction, and what is the length of suction pipe?
5. Against what pressure or to what height is water to be forced?
6. What is the greatest quantity of water needed per hour

Rubber Valves are suitable where Hot Water is pumped.

All our Steam Pumps are made with Rubber Valves on Brass Seats. When Brass Valves are wanted, please mention the fact.

RUBBER VALVES, BRASS SPRINGS AND BOLTS, FOR CRANE'S STEAM PUMPS.

Number and Style of Valves Used.		Suitable for Pump.	Price of Rubber Valves, *Each* Net.	Price of Brass Springs, Each, Net.	Price of Brass Bolts, Each, net.
4	3x1¼ inches, Flat	No. 1, Auxiliary	15 Cts.	4 Cts.	No Bolt.
4	4⅜x1¾ inches, Flat	No. 3, Auxiliary	30	6	"
4	5⅝x2¼ inches, Flat	No. 5, Auxiliary	50	8	"
4	3 inches, Round	No. 6, Auxiliary	25	8	15 Cts.
4	3½ inches, Round		35	12	15
4	4 inches, Round	No. 7, Auxiliary	50	12	25
4	4½ inches, Round		60	18	25
4	4½ inches, Round	No. 8, Auxiliary	60	18	25
12	3 inches, Round		25	8	20
4	5 inches, Round	No. 9, Auxiliary	75	18	25
12	3½ inches, Round		35	12	20
4	5 inches, Round	No. 10, Auxiliary	75	18	25
16	3½ inches, Round		35	12	20
4	3 inches, Round	A A, Fire Pump	25	8	20
4	3½ inches, Round		35	12	20
4	4 inches, Round	B B, Fire Pump	50	12	25
4	4½ inches, Round		60	18	25
4	4 inches, Round	C C, Fire Pump	50	12	25
12	3 inches, Round		25	8	20
4	5 inches, Round	D D, Fire Pump	75	18	25
2	3½ inches, Round		35	12	20
8	2 inches, Round	No. 2, Balance Wheel	10	5	10
8	3 inches, Round	No. 3, Balance Wheel	25	8	15
8	3½ inches, Round	No. 5, Balance Wheel	35	12	15
20	3 inches, Round	No. 7, Balance Wheel	25	8	15
20	3 inches, Round	No. 7½, Bal'ce Wheel	25	8	15
24	3 inches, Round	No. 8, Balance Wheel	25	8	15
24	3 inches, Round	No. 9, Balance Wheel	25	8	15
16	3½ inches, Round	No. 5, Duplex	35	12	15
40	3 inches, Round	No. 7, Duplex	25	8	15
40	3 inches, Round	No. 7½, Duplex	25	8	15
48	3 inches, Round	No. 8, Duplex	25	8	15
48	3 inches, Round	No. 8½, Duplex	25	8	15
8	2 inches, Round	No. 3, Dbl. Plunger	10	5	10
8	3 inches, Round	No 5, Dbl. Plunger	25	8	15



HYDRANTS.

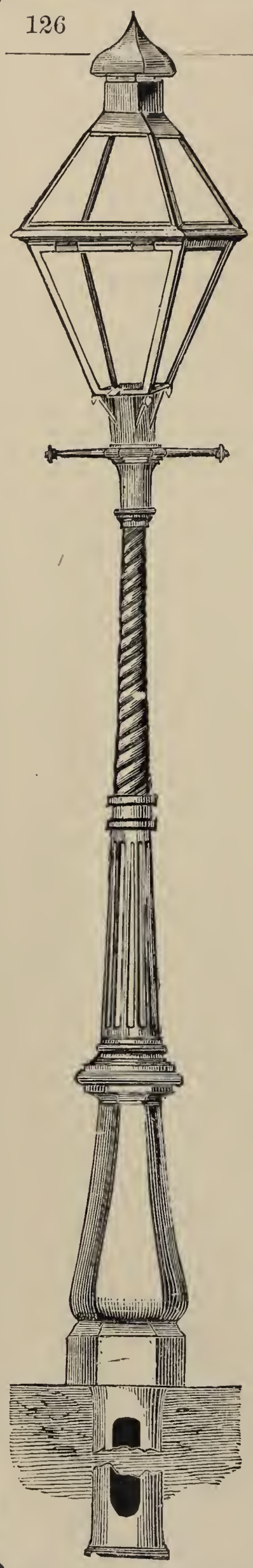
Contractors and Corporations requiring large lots will be most liberally dealt with.

A, Stem. B, Swivel. C, Stuffing Box. D, Valve. E, Waste.

PATENT POST FIRE HYDRANT

No. of Discharge Nozzles.	Size of Nozzles. Inches.	Size of Gate. Inches.	Size of Hub. Inches.	PRICES.					
				To Bury 4 Feet.		To Bury 4½ Feet.		To Bury 5½ Feet.	
				With Jacket.	Without Jacket.	With Jacket.	Without Jacket.	With Jacket.	Without Jacket.
1	2½	4	4	48 00	42 00	50 00	43 50	53 00	45 50
2	2½	4	4 to 6	60 00	53 00	61 50	54 00	63 00	55 00
1	4	4	4 to 6	60 00	53 00	61 50	54 00	63 00	55 00
3	2½	6	6	90 00	78 00	95 00	81 00	100 00	90 00
2	4	6	6	85 00	74 00	90 00	77 00	96 00	85 00
3	1–4 2–2½	6	6	90 00	78 00	95 00	81 00	100 00	90 00

The Valve is made of Brass, and the drip is very large and positive.



LAMP-POSTS.

We beg to call attention to our new style of Lamp-posts. We are prepared to fill orders for any quantity, on short notice. Contractors, Gas Companies and other Corporations requiring large lots will be most liberally dealt with.

DESCRIPTION.

Entire length of Post ..... 11 6 ft.
" under sidewalk ..... 2 8 ft.
" above " ..... 8 10 ft.

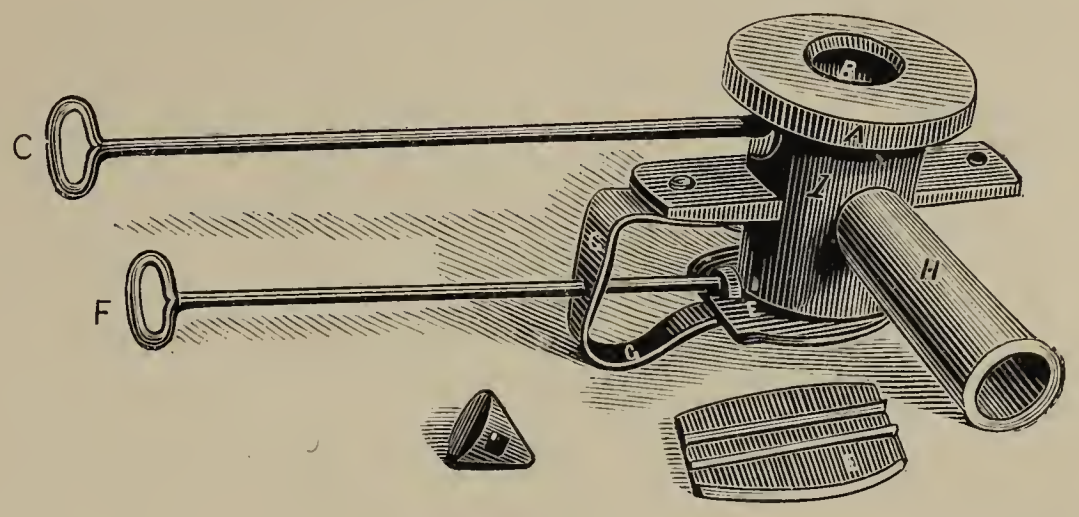
If it be necessary at any time, we can shorten the portion under sidewalk.

We have patterns for posts weighing, say 260, 240 and 200 lbs.

We also furnish the Standard Lamp, with Iron or Tin Socket and Glass complete.

Prices made known on application.

TUYERE IRONS.

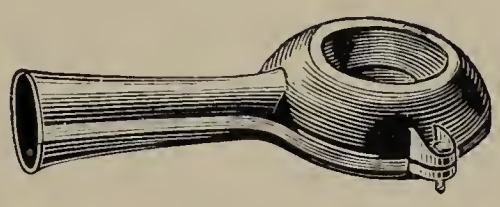


Price..... $4 50

Explanation of Cut.

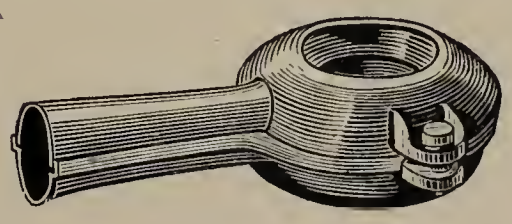
A, Upper Face of Tuyere.
B, Valve to regulate blast.
C, Handle to blast valve.
E, Slide at bottom to clear Tuyere.
F, Handle to slide.
G, Spring to regulate the pressure slide.
H, Blast Pipe.

SINGLE DUCK NEST



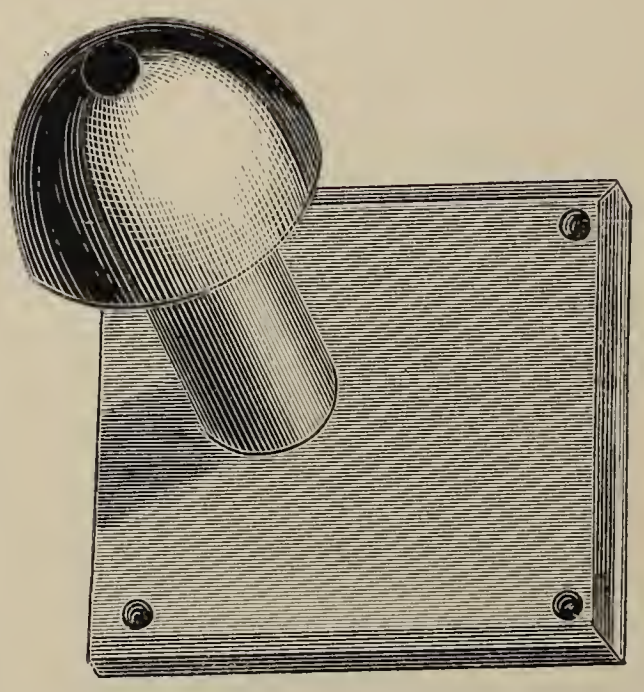
Improved Pattern..... $1 25

DOUBLE DUCK NEST.



Improved Pattern..... $1 75

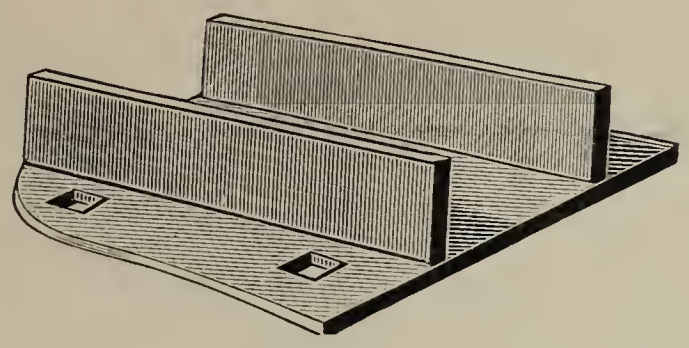
TUYERE IRONS.



GLOBE HEAD, WITH BACK PLATE.

Globe Head, without Back Plate	$1 50
" " with " "	2 50

REACH PLATES.

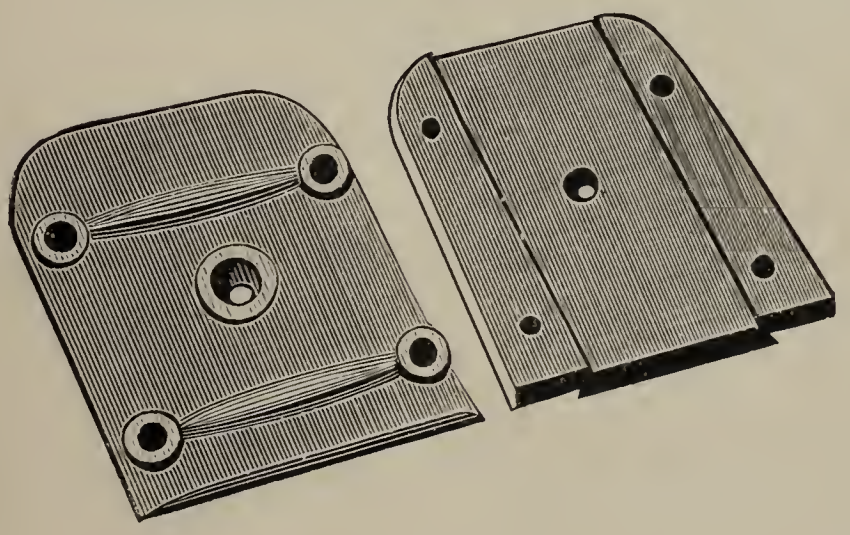


CAST-IRON REACH PLATES.

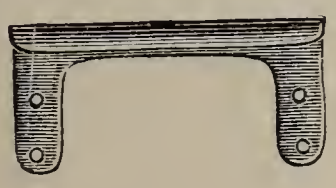
With Flange.

Width	$3\frac{5}{8}$ inches.	Thickness	$1\frac{7}{8}$ inches.	Length	8 inches.
"	$3\frac{7}{8}$ "	"	$1\frac{3}{4}$ "	"	$8\frac{1}{2}$ "
"	$4\frac{1}{4}$ "	"	2 "	"	9 "
"	$4\frac{3}{4}$ "	"	2 "	"	$9\frac{3}{8}$ "

CAST-IRON DOUBLE REACH PLATES.



Width of Reach	$3\frac{1}{2}$ inches.	
"	"	$3\frac{5}{8}$ "
"	"	$3\frac{3}{4}$ "
"	"	4 "
"	"	$4\frac{1}{8}$ "
"	"	$4\frac{1}{4}$ "
"	"	$4\frac{3}{8}$ "



CAST RUB IRONS.

CAST-IRON SLEIGH SHOES.

Plain or Grooved-Faced.

Size ..... inches	30	36	38	40	42
Weight in Pounds (about)	14	15	17	18	19

Prices furnished on application.

SOLDER.

Crane Bros. Manfg. Co. Extra Fine

We manufacture ***Tin Solders,*** and warrant quality.

Crane Bros. Manufacturing Company's Extra Fine (straps).
" " " " Fine (straps).
" " " " Fine (ingots).

Our prices for above brands will always be as low as any of equal quality.

BRASS CASTINGS.

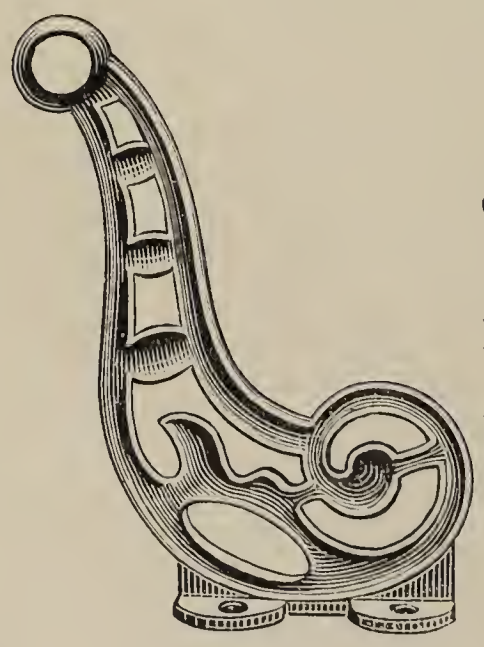
We make a specialty of Brass Boxes for Agricultural Machinery, of which we have quite a variety of patterns.

Brass Castings of all kinds made to order on short notice.

ROD SOCKETS.

Malleable Iron and Brass.

Malleable Iron,	$\frac{3}{8}$	inch,	14	threads	to the	inch,	per	lb	$0 25
"	"	$\frac{7}{16}$	"	12	"	"	"	"	20
Brass	"	$\frac{3}{8}$	"	14	"	"	"	"	40
"	"	$\frac{7}{16}$	"	12	"	"	"	"	40



COUNTER BRACKETS.

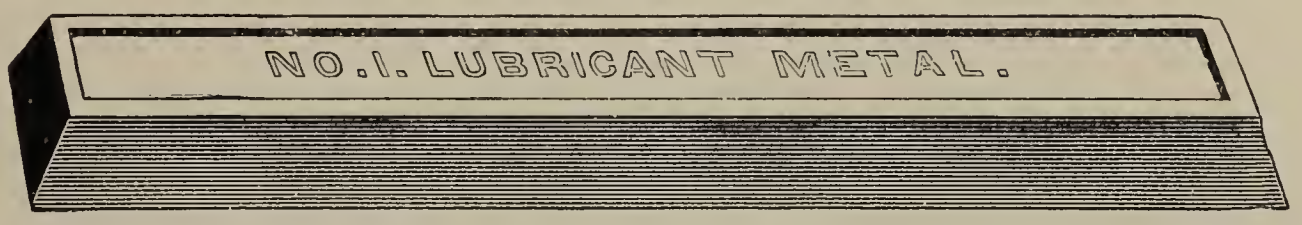
Price for $\frac{3}{4}$ inch Pipe, each $0 30

Price for 1 " " " 35

BABBITT METAL.

We desire to call your attention to the following brands of Babbitt Metal, which we have manufactured and used in our Works for the past fifteen years (an experience that enables us to guarantee the quality to be superior in MANY respects to all other brands, and the best metal for the price in the market), which we offer to the general trade, believing that it will be for their interest to purchase of us, and thus obtain the benefit of our long experience.

The bars weigh about 2½ lbs. each, and are put up in 100 lb. boxes.



"No. 00 Babbitt."

"No. 1 Babbitt."

"No. 1 Lubricant Metal." This is a considerably *better* grade than the "No. 1 Babbitt."

"Hercules Metal" is a still better quality than the "No. 1 Lubricant Metal," being a combination of greater strength and hardness.

"XC Babbitt" is a very much finer quality of Metal, and is harder and stronger than either of the other brands.

"Crane Bros. Mfng. Co." is our original and genuine article of BABBITT METAL, possessing all the desirable qualities, and is warranted *superior* to anything in the market.

Any of the above brands may be had in Ingots weighing 20 or 50 pounds each.

Samples sent on application.

We hope to be favored with your orders, which will have our usual prompt attention.

NOTE.— We manufacture a large number of SPECIAL PRIVATE BRANDS, for regular customers, and for orders of 500 pounds we make no extra charge for molds.

FIRE HYDRANT,

For Attaching City Hose to Fire Pipe.

This Hydrant is usually placed on the sidewalk, near the curb wall, for the convenience of attaching the hose from city fire engines, and is connected with a fire or stand pipe extending in and to the top of building, with a hose valve on each floor and roof.

They are similar in appearance to an ordinary fire hydrant.

Price, including hose attachment, $25.00.

MISCELLANEOUS.

Malleable Oil Cans, each	$ 50
Italian Cement, per lb.	15
C. H. No. 1 Waste, per lb.	15
Lamp Wick, per lb.	40
Boiler Purger, Victor, per lb.	30
Boiler Purger (20 lb. boxes, Cheeseman's Compound) per box	4 00

CATCH BASINS—CAST IRON,

With Trap and Movable Cover.

Diameter.	Height.	Average Weight.	Price.
2 feet.	5 feet.	1,000 pounds.	$50 00
2 "	4 " 6 inches.	900 "	45 00
2 "	3 "	700 "	40 00

HORSE WEIGHTS.

Weight, lbs., 9, 10, 12, 15, 22, 25, 30, 45.....Price per 100 lbs.

DUMB BELLS.

Weight each, lbs., 5, 12, 15, 16, 20, 25, 30, 35, 40, 50...Price per 100 lbs.

POST MAULS—SQUARE.

Weight, lbs., 11, 16, 20.....Price per 100 lbs.

POST MAULS—ROUND.

Weight, lbs., 9, 12, 14, 16, 18.....Price per 100 lbs.

QUOITS.

Weight each, lbs., 3, 5, 7.....Price per 100 lbs.

BED HOOKS.

We have a variety of styles, a stock of which is always on hand, at lowest market price.

SASH WEIGHTS.

STANDARD SIZES OF ROUND IRON WEIGHTS.

Weight, lbs.	Diameter, Inches.	Length, Inches.
3	$1\frac{1}{2}$	7
4	"	$9\frac{1}{4}$
$4\frac{1}{2}$	"	$10\frac{1}{2}$
5	"	$11\frac{1}{4}$
$5\frac{1}{2}$	"	$12\frac{1}{2}$
6	"	$13\frac{1}{2}$
$6\frac{1}{2}$	"	14
7	"	$14\frac{3}{4}$
$7\frac{1}{2}$	"	$16\frac{1}{2}$
8	"	$17\frac{1}{2}$
9	"	19
10	$1\frac{3}{4}$	$16\frac{1}{2}$
11	"	19
12	"	$19\frac{1}{2}$
13	"	$20\frac{3}{4}$
14	"	$22\frac{1}{4}$
15	"	24
16	$1\frac{7}{8}$	24
17	"	$25\frac{1}{2}$
18	"	$27\frac{1}{2}$
19	"	29
20	"	31

We have also Eight and Twelve-Pound Weights with an eye at each end.

STANDARD SIZES OF SASH WEIGHTS, IRON.

Square.

We have patterns for Square Sash Weights, 2, $2\frac{1}{4}$ and $2\frac{1}{2}$ inches; the 2-inch can be made any weight up to 33 pounds; the $2\frac{1}{4}$ to 50 pounds; the $2\frac{1}{2}$ to 60 pounds, at an advance of $\frac{1}{4}$ to $\frac{1}{2}$ cent per pound on prices of round weights, according to size of order.

Square weights weigh per inch as follows: 2-inch, 1 pound; $2\frac{1}{4}$-inch, 1.32 pound; $2\frac{1}{2}$-inch, 1.63 pound.

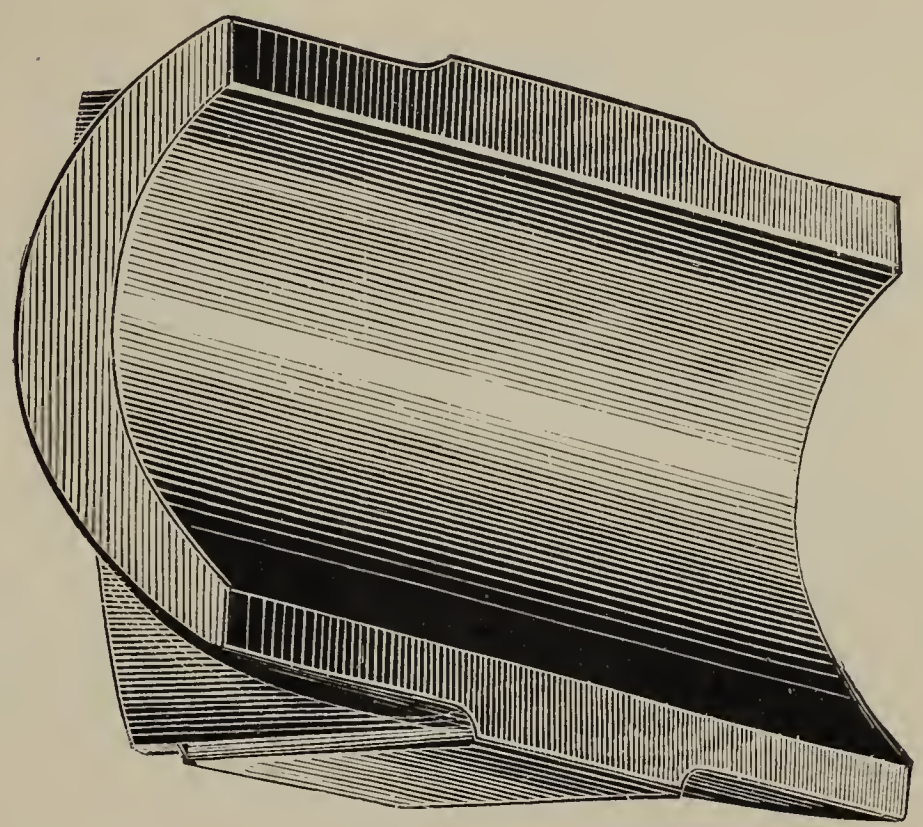
Other than above sizes made to order at an advance of $\frac{1}{2}$ to 1 cent per pound, according to size of order.

LEAD SASH WEIGHTS.

Lead Sash Weights, round or square, made to order at special prices, determined by the quantity required.

LIBRARY

JOURNAL BEARINGS.



WE MANUFACTURE

SOLID BRASS BEARINGS,

SKELETON BRASS BEARINGS,

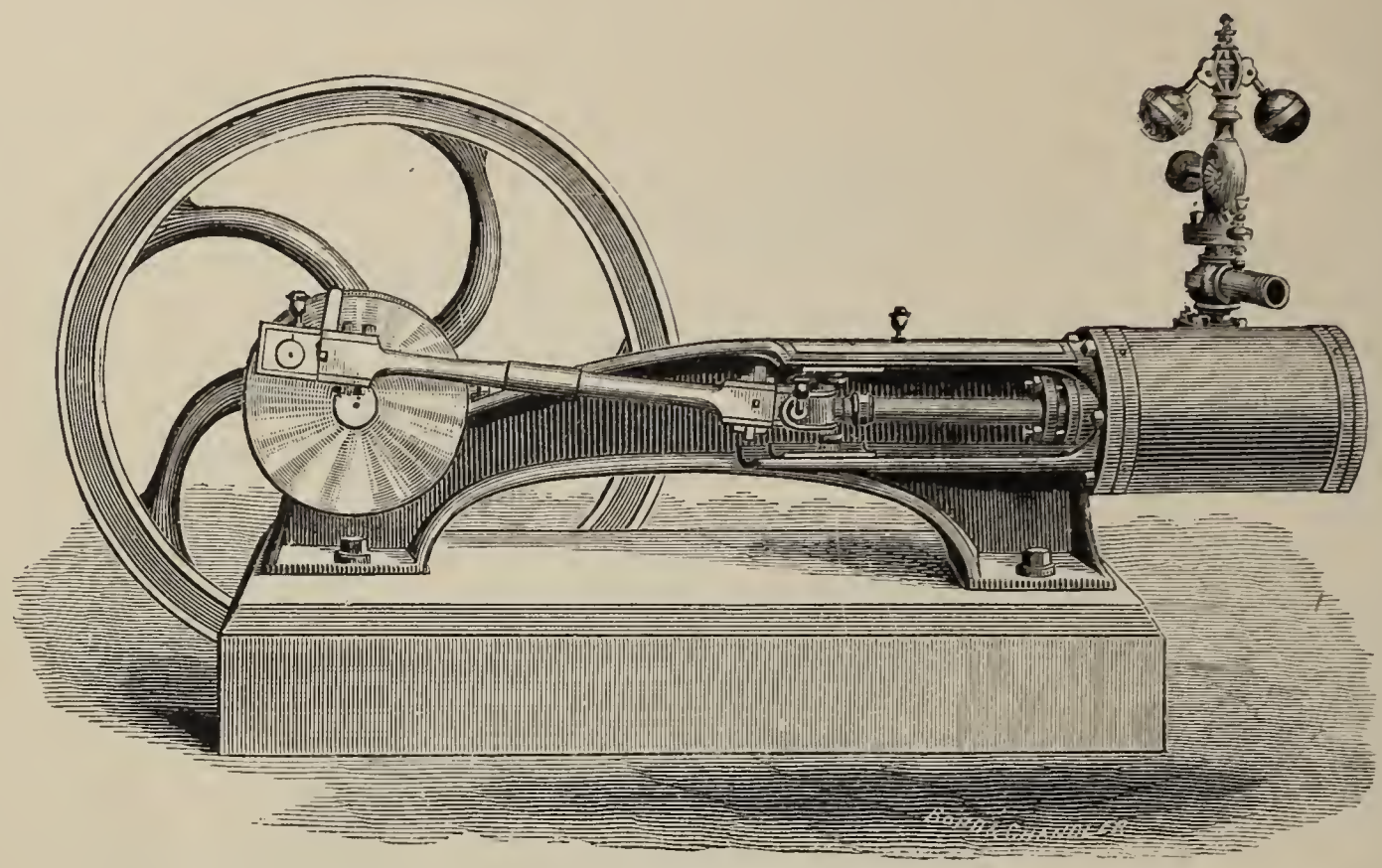
Solid Brass Bearings, Lead Lined,

SKELETON BRASS BEARINGS FILLED WITH BABBITT,

For Railroad Companies and Car Builders.

OLD BRASS BEARINGS BOUGHT.

STEAM ENGINES.



This cut represents a *style of Engine* which we have designed with great care, and claim for it some merits over the ordinary Engine found in the market. They are constructed with Guides formed in the Frame, which are bored true with the cylinder, insuring great accuracy and a very liberal bearing, and the cross-head has adjustable slides. The Piston Rod and Crank Pins are steel, and all bearings are liberal in size and constructed in the best manner. Fly wheels are turned in the rim to insure their true running.

We are now manufacturing the following sizes:

Numbers.	Horse Power.	Diameter of Cylinder in Inches.	Length of Stroke in Inches.	Number of Revolutions per Minute.	Diameter of Fly Wheel, inches.	Weight of Fly Wheel, Pounds.	Weight of Engine and Fly Wheel, lbs.	Prices.
1	9	6	9	140	41	400	1300	$360 00
2	16	8	12	135	48	575	1900	480 00
3	25	10	15	130	60	830	3600	700 00

These prices do not include either Belt, Pulley, Pump or Heater. We manufacture a variety of independent Pumps and Heaters, which, with Pulleys, will be furnished at reasonable prices.

CRANE BROS. MANFG. CO.

MANUFACTURERS OF

STEAM ENGINES,

Of the most Modern and Approved Styles,

CONDENSING AND NON-CONDENSING,

Embracing in the various Valve Motions used that known as the

Corliss Valve,

Which we are prepared to furnish on short notice.

THE CORLISS ENGINE

is undoubtedly the best in use, producing the greatest amount of power per given quantity of fuel.

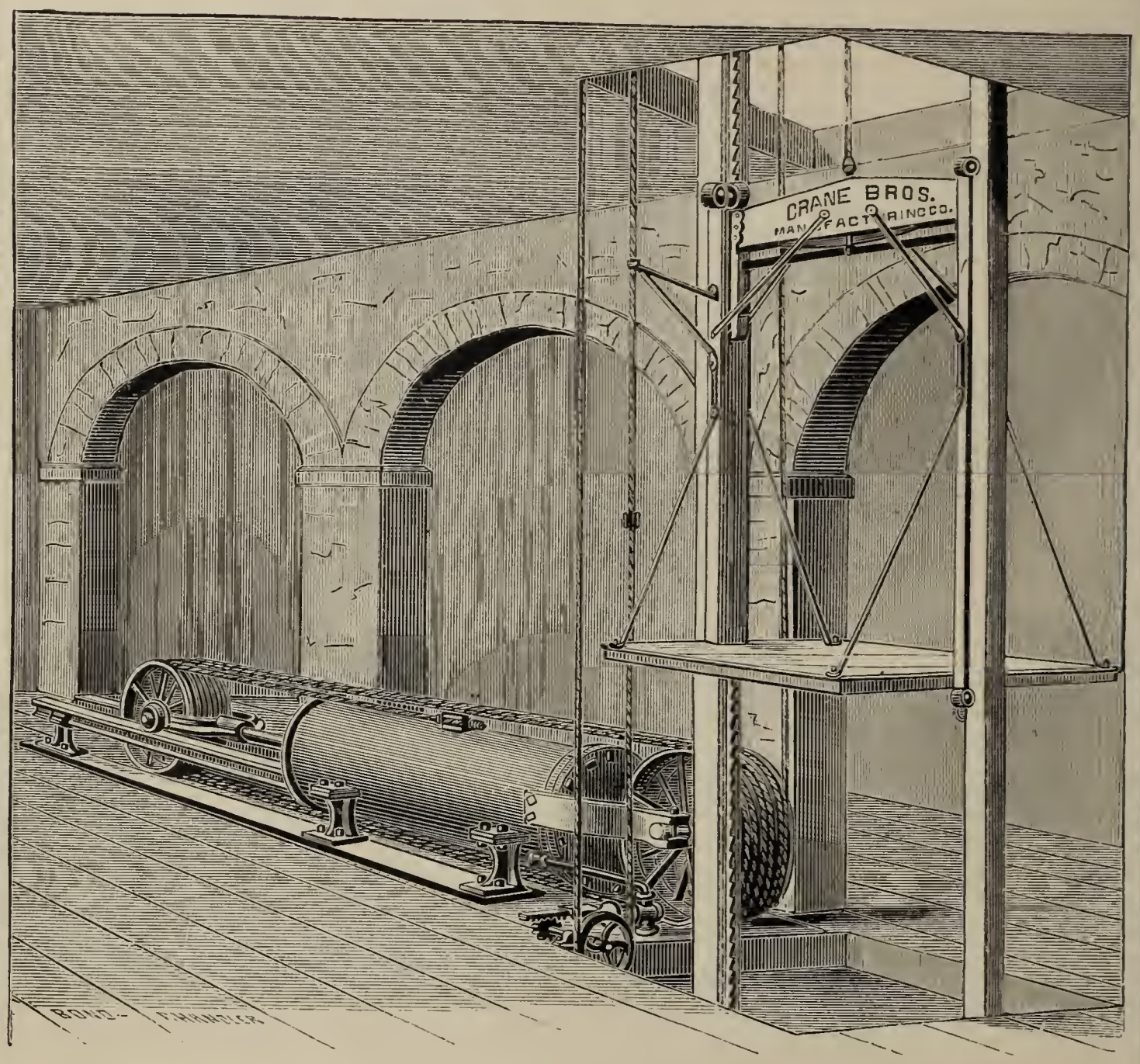
That the above result has been attained with this class Engine is freely admitted by the thousands who are familiar with their use.

We have also patterns of Upright and Square Bed Horizontal Engines of the following sizes, which we will furnish to order:

Horizontal, 6x9, 8x10, 10x15, 12x18, 14x20, 16x22, 18x24, 22x28, 24x30, 26x30.

Upright, 5x6, 10x12, 12x12, 20x24.

Crane's Hydraulic Elevators.

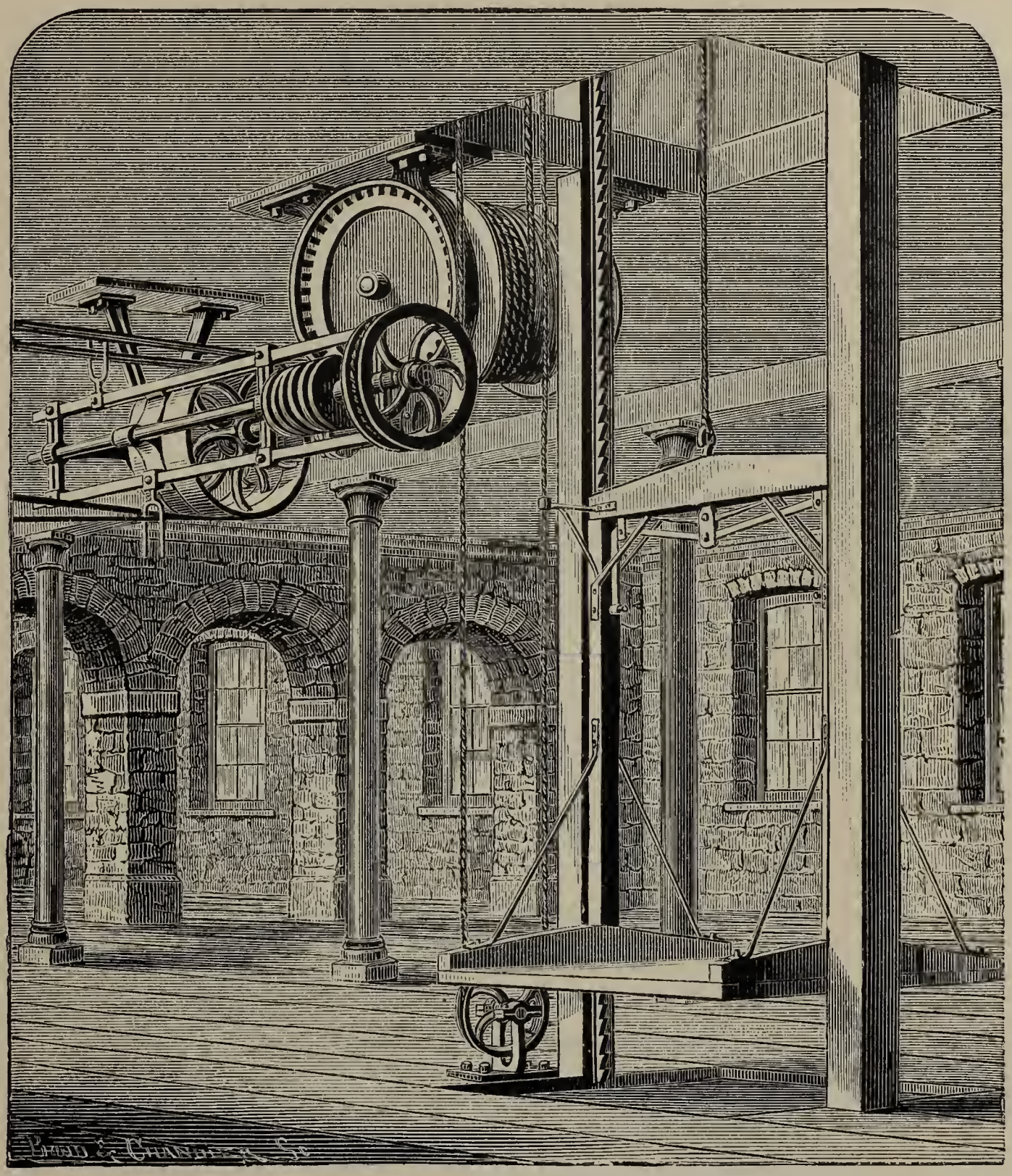


The above illustration represents our ***HYDRAULIC ELEVATOR.***

In calling for estimates for these Machines please give the following necessary data, viz :

1st. Height of each story from basement to roof.
2d. Size of Platform, and whether for side or corner posts.
3d. Water pressure per square inch at level of basement floor.
4th. Size of water main from which supply is to be obtained.

CRANES' WORM-GEARED FACTORY ELEVATORS.



The above cut represents our Improved Worm-Geared Factory Elevator, with turned Steel Worm. The increased demand for these machines is conclusive evidence of their superiority over those generally found in the market.

The Standard Freight Machine has a capacity for lifting 2,500 lbs. at a speed of forty feet per minute. Machines for lighter loads and greater speed can be furnished

SPUR-GEARED ELEVATORS.— We also have patterns, but manufacture to order only, these Elevators from 2,500 to 10,000 pounds.

In calling for estimates for these Machines, please answer the following questions:

1st. Height of each story from basement to roof. 2d. Size of platform and whether for side or corner posts. 3d. If you wish us to furnish the driving pulley, give us number of revolutions and diameter of shaft.

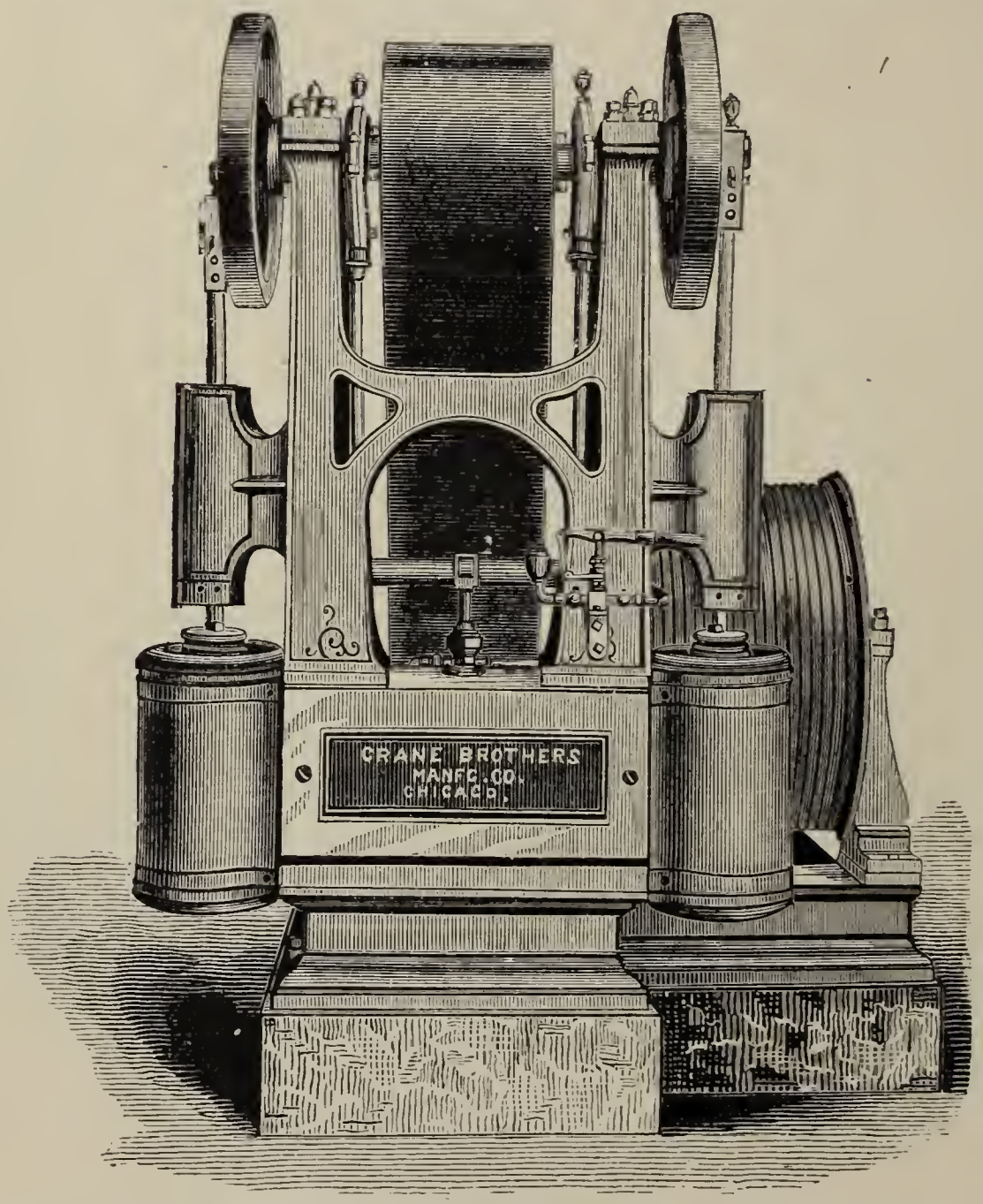
CRANE'S PATENT SAFETY

STEAM

Freight and Passenger Elevator

FOR

HOTELS, STORES, OFFICE BUILDINGS, WAREHOUSES, Etc.



In calling for estimates for these Machines please answer the following questions:

1st. Height of each story from basement to roof.
2d. Size of platform, and whether for side or corner posts.
3d. Whether for Freight or Passenger service.
4th. Capacity, *i. e.* weight to be raised.

Passenger and Freight Elevators.

We desire to call the attention of **Architects** *and* **Owners** *of buildings to the* **Passenger and Freight Elevators** *of our manufacture, which we* **guarantee in all respects,** *and which can not be excelled for* **Safety, Efficiency, Durability and Economy.**

Our Elevators possess several late improvements, and are in many respects superior to any other Elevator in the market.

REFERENCES.

We refer to the following parties now using our machines:

CHICAGO.

Field, Leiter & Co.
R. S. McCormick.
J. V. Farwell & Co.
Singer Manfg. Co.
Howe Machine Co.
J. S. Kirk & Co.
S. D. Kimbark.
J. V. Ayer's Sons.
Frank Sturges & Co.
Wm. Blair & Co.
Miller Bros. & Keep.
Seeberger & Breakey.
Kirk & Barker.
Perry & Co.
Peter Schuttler.
Crerar, Adams & Co.
E.W. Blatchford & Co.
Wright & Lawther Oil and Lead Manfg. Co.
Heath & Milligan.
John Allston & Co.
C. T. Raynolds & Co.
Van Schaack, Stevenson & Reid.
Sherman, Hall & Cook.
Farrington & Schmahl.
Wm. M. Hoyt & Co.
Gray Brothers.
Durand Bros & Co.
Brown & Moore.
Cahn, Wampold & Co.
Silverman, Lindauer & Co.
Leopold, Kuh & Co.
Mandell Bros.
D. Webster & Co.
Spencer H. Peck.
George Gilbert.
Tobey Furniture Co.
W. W. Strong Furniture Co.
Geo. P. Gore & Co.
Bradner, Smith & Co.
"The Times."
"Evening Journal."
Lakeside Publishing and Printing Co.
Culbertson, Blair & Co.
Chamber of Commerce.
Rosenfeld & Rosenberg.
S. M. Nickerson.
Estate of Ira Couch.
E. McKey & Bro.
J. W. Odell.
Rev. W. H. Ryder.
A. J. Averill.
Jonathan Clark.
S. B. Cobb.
Jos. Matteson.
J. K. Botsford.
Geo. L. Thatcher.
American Express Co.
Union National Bank.
Merchants' Building.
J. M. Williams.

Passenger and Freight Elevators.

REFERENCES—Continued.

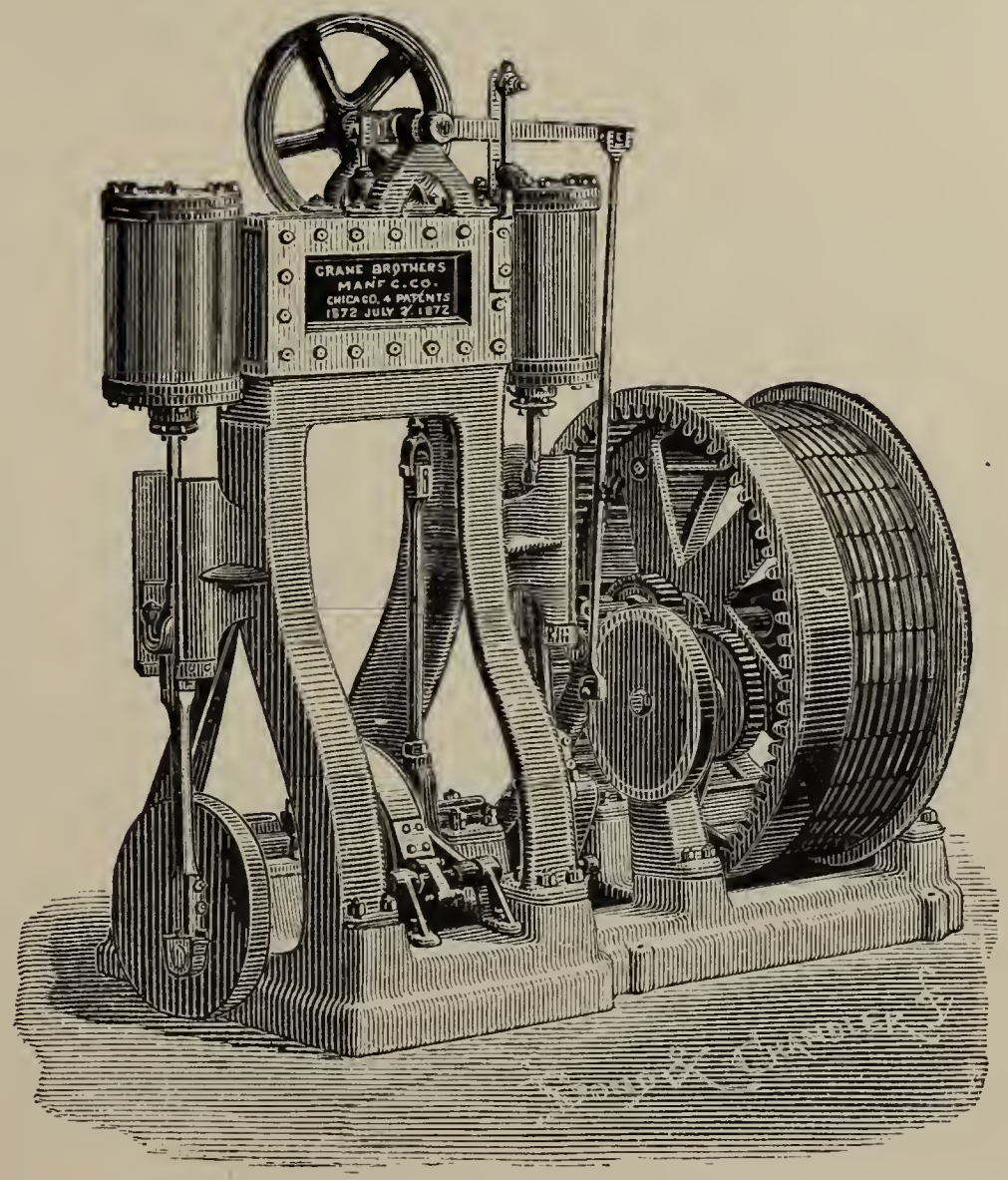
OTHER CITIES

Kennard House, Cleveland, O.
Sweet's Hotel, Grand Rapids, Mich.
Cutler House, Grand Haven, Mich.
Zion's Coöperative Mercantile Inst., Salt Lake City.
C. H. Buhl, Detroit, Mich.
Russell House, Detroit, Mich.
Nashville and Chattanooga Railroad Co., Johnsonville, Tenn.
Nelson & Co., Burlington, Iowa.
Bullene, Moores & Emery, Kansas City, Missouri.
W. D. Richardson, Springfield, Ill.
Scruggs, Vandervoort & Barney, St. Louis.
Wm. M. Macqueen, St. Louis.
Geo. W. Kerr Building, St. Louis.
Chas. P. Choteau, St. Louis.
Henry Corwith, St. Louis.
Chas. H. Rogers, St. Louis.
Bernard Reilly, St. Louis.
Turner & Patterson, St. Louis.
Masonic Temple, St. Louis.
Simmons Hardware Co., St. Louis.
Udell, Schmieding & Co., St. Louis.
Mitchell Furniture Co., St. Louis.
Illinois Central R. R. Co. Offices, St. Louis.
J. H. Wear & Co., St. Louis.
Crow, Hargardine & Co., St. Louis.
Windsor Hotel, Montreal, Canada.
2 Avery & Riggens, New York.
1 Museum of National History, N. Y.
1 Peters Manfg. Co., Newark, N. J.
2 J. Naylor & Co., New York.

CRANE'S

HOISTING ENGINES

Exclusively for Blast Furnaces and Mines.



We manufacture a Double Drum, Direct Acting Engine, of above design, exclusively for mines.

We also manufacture Horizontal Hoisting Engines for mines.

All of the above mentioned Machines are reversible, and are designed for continuous work, and, to insure this, are built in a superior manner and of the very best material.

Parties wishing estimates will please state

1st. The amount of material to be raised in twenty-four hours.
2d. The height of Stack or depth of Shaft.
3d. The Load to be raised.
4th. The usual pressure of Steam.
5th. Size of Platform.

CRANE BROS. MANFG. CO.

MANUFACTURERS OF

Hydraulic Machinery.

We make a Specialty in the manufacture of all kinds.

HYDRAULIC PRESSES

FOR MANUFACTURING

Linseed Oil, Paper, Fertilizers, Etc.

Have the most approved PATTERNS of

HYDRAULIC PUMPS,

Accumulators, Equalizers, Etc.

For working under HIGH PRESSURE.

CRANE BROS. MANFG. COMPANY,

MANUFACTURERS OF

CRANE'S PATENT

Hoisting Machinery,

WITH IMPROVED

POSITIVE SAFETY APPLIANCES,

Which have no equal for Efficiency, Durability, Economy, Safety, Simplicity and Compactness.

DESIGNED FOR MINES, BLAST FURNACES, BUILDING AND BRIDGE RAISING, ETC.

Steam and Hydraulic Elevators

FOR

Passenger and Freight Service.

BELT POWER ELEVATORS,

For Factories, Warehouses, Stores, Etc.

Worm and Spur Geared, ranging in capacity from 2,000 to 10,000 pounds.

STEAM ENGINES

OF ALL DESCRIPTIONS, INCLUDING

THE CRANE AUTOMATIC ENGINE,

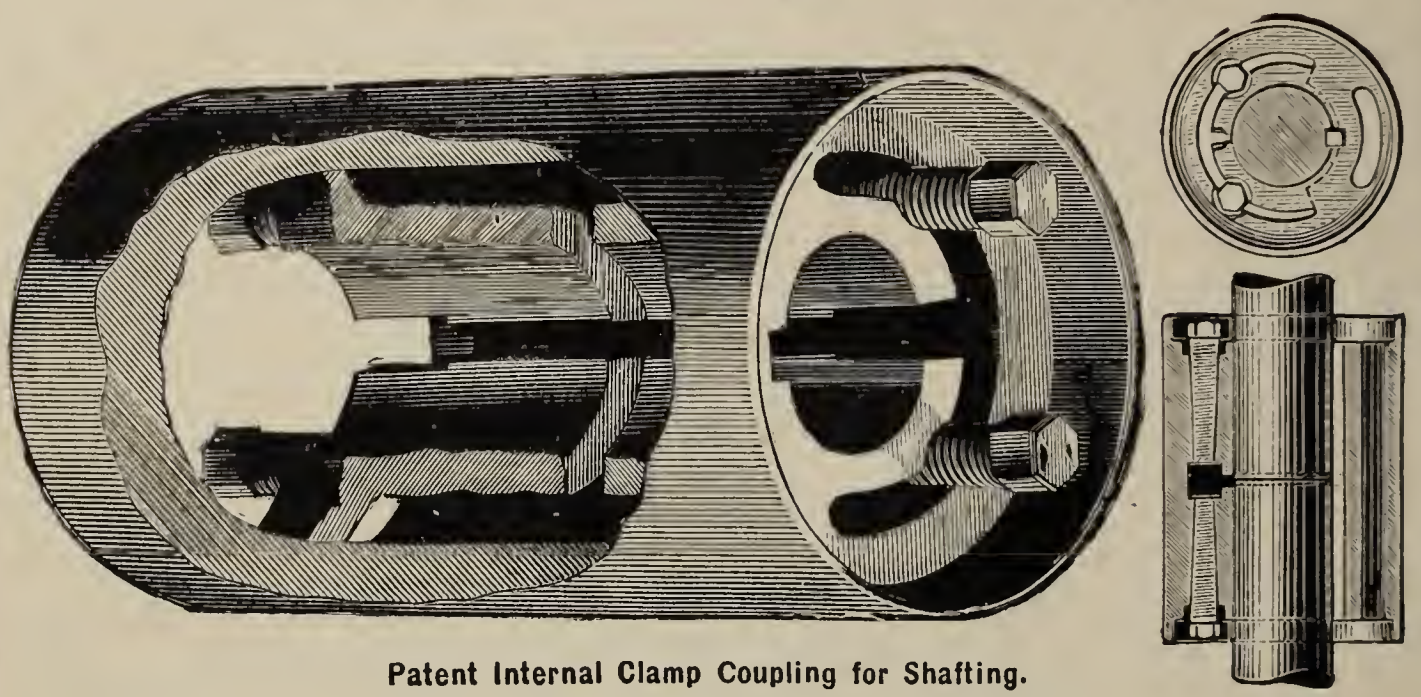
Steam Pumps, Pulleys, Shafting and Hangers.

IMPROVED

COUPLINGS AND PULLEYS

FOR

LINE SHAFTING.



Patent Internal Clamp Coupling for Shafting.

The Cheapest and Only Reliable Shaft Coupling in Existence.

THE BEST PULLEY FASTENING.

The Crane Bros. Manfg. Company having obtained the right to manufacture the Patent Internal Clamp Coupling for Shafting, *and the* Patent Internal Clamp Hub Pulley, *are now, with their increased facilities for furnishing all sizes of Shafting, Etc., prepared to receive orders, and give estimates for furnishing same.*

DESCRIPTIVE CATALOGUE AND PRICE LIST SENT ON APPLICATION.

REVISED LIST

OF

Malleable and Cast Iron Fittings

FOR

GAS, STEAM AND WATER PIPE.

Our new patterns for Cast Iron Fittings, for beauty, finish and strength, are unequaled by any others in the market.

In ordering the same please state "Cast Iron," otherwise Malleable will be sent; also, describe the fittings by their numbers in the following list.

NOTE.—All classes and sizes are made in Malleable, from $\frac{1}{4}$ in. to 2 in. inclusive, also, Ells, Tees, Crosses and Reducers, $2\frac{1}{2}$ in. to 4 in. as numbered, viz: 38, 42, 46, 50, 254, 255, 256, 265, 266, 267, 268, 269, 295, 391, 394, 397, 494, 495, 497, 539, 542, 543, 547, and 550. All other sizes above 2 in. are made of CAST IRON ONLY.

Also such sizes as are indicated by the letter "C" are made of Cast Iron.

We make all sizes of "Gas or Plain Fittings" up to 2 in. except those marked "*," which indicates "Beaded."

We keep in stock "Malleable" Galvanized Fittings, such numbers as marked "G," also furnish TO ORDER Galvanized Cast Iron Fittings.

Fittings Made to Order at an Extra Charge.

ELBOWS.

No.		No.		No.	
1	$\frac{1}{8}$ x $\frac{1}{8}$	G C 18	1 x 1	41	3 x $2\frac{1}{2}$
2	$\frac{1}{4}$ x $\frac{1}{8}$	* 21	$1\frac{1}{4}$ x $\frac{3}{4}$	G 42	3 x 3
3	$\frac{1}{4}$ x $\frac{1}{4}$	C 22	$1\frac{1}{4}$ x 1	G 46	$3\frac{1}{2}$ x $3\frac{1}{2}$
5	$\frac{3}{8}$ x $\frac{1}{4}$	G C 23	$1\frac{1}{4}$ x $1\frac{1}{4}$	G 50	4 x 4
C 6	$\frac{3}{8}$ x $\frac{3}{8}$	* 26	$1\frac{1}{2}$ x 1	52	$4\frac{1}{2}$ x $4\frac{1}{2}$
8	$\frac{1}{2}$ x $\frac{3}{8}$	C 27	$1\frac{1}{2}$ x $1\frac{1}{4}$	54	5 x 5
G C 9	$\frac{1}{2}$ x $\frac{1}{2}$	G C 28	$1\frac{1}{2}$ x $1\frac{1}{2}$	56	6 x 6
* 11	$\frac{3}{4}$ x $\frac{3}{8}$	C 32	2 x $1\frac{1}{2}$	$56\frac{1}{2}$	7 x 7
C 12	$\frac{3}{4}$ x $\frac{1}{2}$	G C 33	2 x 2	57	8 x 8
G C 13	$\frac{3}{4}$ x $\frac{3}{4}$	37	$2\frac{1}{2}$ x 2	58	9 x 9
C * 16	1 x $\frac{1}{2}$	G 38	$2\frac{1}{2}$ x $2\frac{1}{2}$	59	10 x10
C 17	1 x $\frac{3}{4}$				

STREET ELBOWS.

No.		No.		No.	
60	$\frac{1}{2}$ x $\frac{1}{2}$	65	1 x 1	71	$1\frac{1}{2}$ x $1\frac{1}{4}$
62	$\frac{3}{4}$ x $\frac{3}{4}$	67	$1\frac{1}{4}$ x 1	72	$1\frac{1}{2}$ x $1\frac{1}{2}$
64	1 x $\frac{3}{4}$	68	$1\frac{1}{4}$ x $1\frac{1}{4}$	75	2 x 2

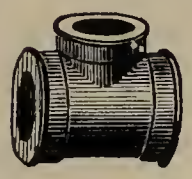
ELBOWS,

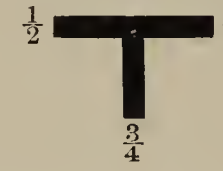
With Side Outlet.

No.		No.		No.	
77	$\frac{3}{8}$ x $\frac{3}{8}$ x $\frac{1}{4}$	84	$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{2}$	88	1 x 1 x $\frac{1}{2}$
80	$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{3}{8}$	85	$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	89	1 x 1 x $\frac{3}{4}$
83	$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{8}$	87	1 x 1 x $\frac{3}{8}$	90	1 x 1 x 1

TEES.

In describing TEES, the RUN is first named, then the outlet, thus:





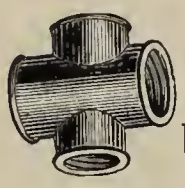
1/2 x 3/8 x 3/4

No.		No.		No.	
100	1/8 x 1/8 x 1/8	* 168	1 x 1/2 x 1	C* 211	1 1/2 x 1 x 1 1/4
107	1/4 x 1/4 x 1/4	* 170	1 x 3/4 x 3/8	C* 212	1 1/2 x 1 x 1 1/2
108	1/4 x 1/4 x 3/8	C 171	1 x 3/4 x 1/2	C 214	1 1/2 x 1 1/4 x 3/4
114	3/8 x 1/4 x 1/4	G C 172	1 x 3/4 x 3/4	C 215	1 1/2 x 1 1/4 x 1
115	3/8 x 1/4 x 3/8	C* 173	1 x 3/4 x 1	G C 216	1 1/2 x 1 1/4 x 1 1/4
116	3/8 x 1/4 x 1/2	C* 174	1 x 3/4 x 1 1/4	C* 217	1 1/2 x 1 1/4 x 1 1/2
120	3/8 x 3/8 x 1/4	175	1 x 1 x 1/4	* 219	1 1/2 x 1 1/2 x 3/8
C 121	3/8 x 3/8 x 3/8	176	1 x 1 x 3/8	* 220	1 1/2 x 1 1/2 x 1/2
C 122	3/8 x 3/8 x 1/2	G C 177	1 x 1 x 1/2	G C 221	1 1/2 x 1 1/2 x 3/4
128	1/2 x 1/4 x 3/8	G C 178	1 x 1 x 3/4	G C 222	1 1/2 x 1 1/2 x 1
129	1/2 x 3/8 x 1/4	G C 179	1 x 1 x 1	G C 223	1 1/2 x 1 1/2 x 1 1/4
C 130	1/2 x 3/8 x 3/8	G C* 180	1 x 1 x 1 1/4	G C 224	1 1/2 x 1 1/2 x 1 1/2
131	1/2 x 3/8 x 1/2	* 182	1 1/4 x 3/8 x 1 1/4	* 224 1/2	1 1/2 x 1 1/4 x 2
132	1/2 x 3/8 x 3/4	* 184	1 1/4 x 1/2 x 1	G C* 225	1 1/2 x 1 1/2 x 2
134	1/2 x 1/2 x 1/4	C* 185	1 1/4 x 1/2 x 1 1/4	* 226	2 x 1/2 x 2
C 135	1/2 x 1/2 x 3/8	* 188	1 1/4 x 3/4 x 3/4	C* 226 1/2	2 x 3/4 x 2
G C 136	1/2 x 1/2 x 1/2	C 189	1 1/4 x 3/4 x 1	C* 227	2 x 1 x 2
G C 137	1/2 x 1/2 x 3/4	C* 190	1 1/4 x 3/4 x 1 1/4	* 227 1/2	2 x 1 1/4 x 1 1/4
146	3/4 x 3/8 x 1/2	* 191	1 1/4 x 1 x 3/8	C 228	2 x 1 1/4 x 1 1/2
147	3/4 x 3/8 x 3/4	* 192	1 1/4 x 1 x 1/2	C* 230	2 x 1 1/4 x 2
* 149	3/4 x 1/2 x 1/4	C 193	1 1/4 x 1 x 3/4	G C 231	2 x 1 1/2 x 1 1/4
150	3/4 x 1/2 x 3/8	G C 194	1 1/4 x 1 x 1	G C 232	2 x 1 1/2 x 1 1/2
C 151	3/4 x 1/2 x 1/2	C* 195	1 1/4 x 1 x 1 1/4	C* 233	2 x 1 1/2 x 2
C 152	3/4 x 1/2 x 3/4	C* 196	1 1/4 x 1 x 1 1/2	234	2 x 1 1/2 x 2 1/2
C* 153	3/4 x 1/2 x 1	* 197	1 1/4 x 1 1/4 x 3/8	* 235	2 x 2 x 1/2
154	3/4 x 3/4 x 1/4	C 198	1 1/4 x 1 1/4 x 1/2	C 236	2 x 2 x 3/4
155	3/4 x 3/4 x 3/8	G C 199	1 1/4 x 1 1/4 x 3/4	G C 237	2 x 2 x 1
G C 156	3/4 x 3/4 x 1/2	G C 200	1 1/4 x 1 1/4 x 1	G C 238	2 x 2 x 1 1/4
G C 157	3/4 x 3/4 x 3/4	G C 201	1 1/4 x 1 1/4 x 1 1/4	G C 239	2 x 2 x 1 1/2
G C 158	3/4 x 3/4 x 1	G C* 202	1 1/4 x 1 1/4 x 1 1/2	G C 240	2 x 2 x 2
* 162	1 x 3/8 x 3/4	C* 205	1 1/2 x 1/2 x 1 1/2	249	2 x 2 x 2 1/2
* 163	1 x 3/8 x 1	C* 206	1 1/2 x 3/4 x 1 1/4	251	2 1/2 x 2 1/2 x 3/4
* 166	1 x 1/2 x 1/2	C* 207	1 1/2 x 3/4 x 1 1/2	252	2 1/2 x 2 1/2 x 1
C 167	1 x 1/2 x 3/4	* 210	1 1/2 x 1 x 1	253	2 1/2 x 2 1/2 x 1 1/4

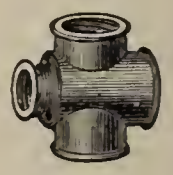
TEES.

No.		No.		No.	
	254		271		294
	255		272		G 295
G	256		273		296
	257		274		296½
	258		275		297
	259		276		298
	260		279		299
	261		280		300
	262		281		301
	263		282		302
	264		285		303
	265		287		304
	266		289		305
	267		291		308
	268		292		309
G	269		293		310
	270				

CROSSES.



The outlets of a Cross are always the same size, and both denoted by the last figure.



No.	Outlets.	No.	Outlets.	No.	Outlets
311	⅜ x ¼ x ¼	351	1 x1 x ½	C * 373	1½x1½x1¼
312	⅜ x ⅜ x ¼	C 352	1 x1 x ¾	* 374	1½x1½x1½
313	⅜ x ⅜ x ⅜	353	1 x1 x 1	* 376	2 x1½x1¼
316	½ x ⅜ x ¼	* 357	1¼x1 x ¾	* 379	2 x2 x ½
317	½ x ⅜ x ⅜	* 358	1¼x1 x 1	* 380	2 x2 x ¾
319	½ x ½ x ¼	* 360	1¼x1¼x ⅜	C * 381	2 x2 x 1
320	½ x ½ x ⅜	* 361	1¼x1¼x ½	C * 382	2 x2 x1¼
321	½ x ½ x ½	* 362	1¼x1¼x ¾	C * 383	2 x2 x1½
330	¾ x ½ x ⅜	* 363	1¼x1¼x1	* 384	2 x2 x2
331	¾ x ½ x ½	C * 364	1¼x1¼x1¼	387	2½x2 x1½
334	¾ x ¾ x ⅜	C * 367	1½x1¼x1	388	2½x2½x1¼
335	¾ x ¾ x ½	* 368	1½x1¼x1¼	389	2½x2½x1½
C 336	¾ x ¾ x ¾	* 369	1½x1½x ⅜	390	2½x2½x2
346	1 x ¾ x ½	* 370	1½x1½x ½	391	2½x2½x2½
C 347	1 x ¾ x ¾	* 371	1½x1½x ¾	392	3 x3 x2
350	1 x1 x ⅜	* 372	1½x1½x 1	393	3 x3 x2½

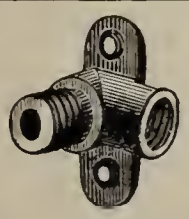
CROSSES.

No.	Outlets.
394	3 x3 x3
394½	3½x3½x2½
395	3½x3½x3
396	3½x3½x3½
397	4 x4 x4
398	4 x4 x3
399	4 x4 x3½
399½	5 x
400	6 x
400½	7 x
401	8 x
401½	9 x
401¾	10 x

DROP ELBOWS.

Female.

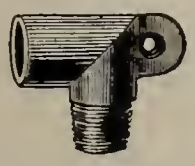
No.	Drop.
402	¼x¼
403	⅜x¼
404	⅜x⅜
406	½x½



DROP ELBOWS.

Male and Female.

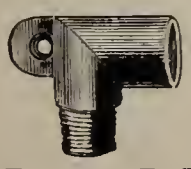
No.	Drop.
413	¼x⅜
414	⅜x⅜
415	½x⅜
With drop 2½ in. long	
422	⅜x⅜
423	¼x⅜



DROP ELBOWS.

Flanges Right Side.

No.	Drop.
431	¼x⅜
432	⅜x⅜



DROP ELBOWS.

Flanges Left Side.

No.	Drop.
436	¼x⅜
437	⅜x⅜

DROP TEES.

Female.

No.	Drop.
449	⅜x ⅜x¼
450	⅜x ⅜x⅜
452	½x ⅜x⅜
454	½x ½x⅜
455	½x ½x½
458	¾x ½x⅜
460	¾x ¾x⅜
463	1 x ¾x⅜
466	1 x1 x⅜

DROP TEES.

Male and Female.

No.	Drop.
471	¼x ¼x⅜
472	⅜x ¼x⅜
473	⅜x ⅜x⅜
474	½x ⅜x⅜
475	½x ½x⅜
476	¾x ½x⅜
477	¾x ¾x⅜
478	1 x ¾x⅜
479	1 x1 x⅜
With drop 2½ in. long	
480	⅜x ⅜x⅜
481	½x ⅜x⅜

CAPS.

486	¼
487	⅜
488	½
489	¾
490	1
491	1¼
492	1½
493	2
494	2½
495	3
496	3½
497	4
498	5
499	6
500	8
500½	10

PLUGS.

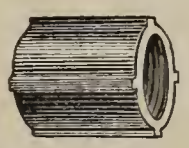
Cast.

503	¼
504	⅜
505	½
506	¾
507	1
508	1¼
509	1½
510	2
511	2½
512	3
513	3½
514	4
515	4½
516	5
517	6
518	7
519	8

REDUCERS.

(Reducing Couplings.)

521	$\frac{3}{8}$	x $\frac{1}{4}$
522	$\frac{1}{2}$	x $\frac{1}{4}$
523	$\frac{1}{2}$	x $\frac{3}{8}$
524	$\frac{3}{4}$	x $\frac{3}{8}$
525	$\frac{3}{4}$	x $\frac{1}{2}$
526	1	x $\frac{3}{8}$
527	1	x $\frac{1}{2}$
528	1	x $\frac{3}{4}$
529	$1\frac{1}{4}$	x $\frac{1}{2}$
530	$1\frac{1}{4}$	x $\frac{3}{4}$
531	$1\frac{1}{4}$	x 1
$531\frac{1}{2}$	$1\frac{1}{2}$	x $\frac{1}{2}$
532	$1\frac{1}{2}$	x $\frac{3}{4}$
533	$1\frac{1}{2}$	x 1
534	$1\frac{1}{2}$	x $1\frac{1}{4}$
535	2	x $\frac{3}{4}$
536	2	x 1
537	2	x $1\frac{1}{4}$
538	2	x $1\frac{1}{2}$
539	$2\frac{1}{2}$	x $1\frac{1}{2}$
542	$2\frac{1}{2}$	x 2
543	3	x 2
547	3	x $2\frac{1}{2}$
550	4	x 3
555	5	x 4
560	6	x 5



MALLEABLE IRON COUPLINGS.

Right and Left.

571	$\frac{1}{4}$
572	$\frac{3}{8}$
573	$\frac{1}{2}$
574	$\frac{3}{4}$
575	1
576	$1\frac{1}{4}$
577	$1\frac{1}{2}$
578	2

EXTENSION PIECES.

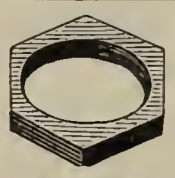
Male and Female.

561 ..... $\frac{3}{8}$ x $\frac{3}{8}$

WROUGHT IRON COUPLINGS.

Right Hand.

587	$\frac{1}{8}$
588	$\frac{1}{4}$
589	$\frac{3}{8}$
590	$\frac{1}{2}$
591	$\frac{3}{4}$
592	1
593	$1\frac{1}{4}$
594	$1\frac{1}{2}$
595	2
596	$2\frac{1}{2}$
597	3
598	$3\frac{1}{2}$
599	4
	$4\frac{1}{2}$
	5
	6
	7
	8
	9
	10



LOCK NUTS.

601	$\frac{1}{4}$
602	$\frac{3}{8}$
603	$\frac{1}{2}$
604	$\frac{3}{4}$
605	1
606	$1\frac{1}{4}$
607	$1\frac{1}{2}$
608	2
609	$2\frac{1}{2}$
610	3
611	$3\frac{1}{2}$
612	4
613	5

WALL PLATES.

640 ..... $\frac{3}{8}$ inch.

STRAPS.

Plain or Galvanized.

614	$\frac{1}{4}$
615	$\frac{3}{8}$
616	$\frac{1}{2}$
617	$\frac{3}{4}$
618	1
619	$1\frac{1}{4}$
620	$1\frac{1}{2}$
621	2

WASTE NUTS.

626 ..... $\frac{3}{8}$ inch.

CHANDELIER HOOKS.

636 ..... $\frac{3}{8}$ inch.

RETURN BENDS.

Open Pattern. Malleable.

No.	Size.	Dis. bet. cen.
660	$\frac{1}{2}$	$1\frac{1}{4}$
661	$\frac{3}{4}$	$1\frac{1}{2}$
662	1	$1\frac{7}{8}$
663	$1\frac{1}{4}$	$2\frac{1}{4}$
664	$1\frac{1}{2}$	$2\frac{1}{2}$
665	2	3
666	2	4

RETURN BENDS.

Close Pattern. Cast Iron.

No.	Size.	Dis. bet. cen.
667	$\frac{3}{4}$	$1\frac{1}{2}$ in.
668	1	$1\frac{3}{4}$
669	$1\frac{1}{4}$	$2\frac{1}{4}$
670	$1\frac{1}{2}$	$2\frac{1}{2}$
671	2	$3\frac{1}{4}$
672	$2\frac{1}{2}$	$3\frac{3}{4}$
673	3	$4\frac{1}{2}$

Also, Cast Iron Open Pattern.

$667\frac{1}{2}$	$\frac{3}{4}$	$1\frac{7}{8}$
$668\frac{1}{2}$	1	$2\frac{1}{4}$
674	4	11

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